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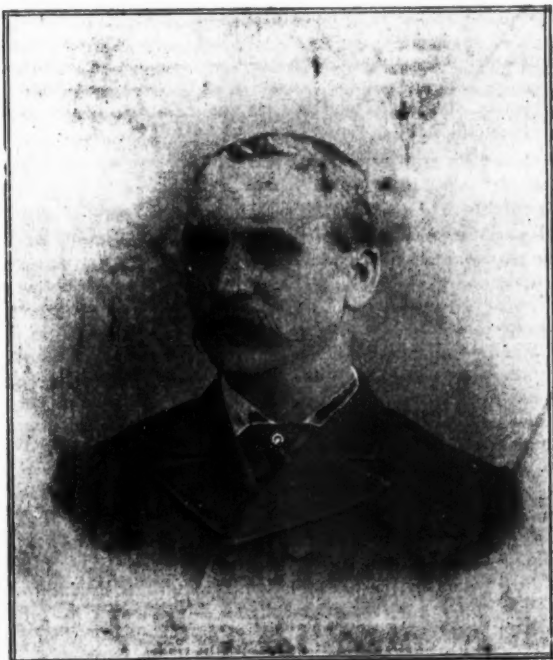
## HARRY M. TURNER.

A Prominent Grange Man and Secretary of the  
West Virginia Board of Agriculture.

BY DR. STANDISH M'CLEARY.

**H**ARRY M. TURNER was born April 5, 1857, near Shepherdstown, Jefferson Co., W. Va., on the farm that had been the home of his forefathers—prosperous and influential farmers—for many generations, and he is therefore a little over 35 years of age.

His youth was spent the same as that of other farmer's boys. Until the age of 12 he attended a country school, where he secured a thirst for knowledge. After leaving the country school he entered Grove's Academy, where he spent three years of his life. Leaving the academy in 1872, he matriculated at the State Normal School at Shepherdstown. He graduated in 1877 and received the college degree of Master of English Literature and proficient in Latin and Greek.



HARRY M. TURNER.

It was his desire to become a lawyer, and young Turner decided to prepare himself for the bar. With this object in view he had perfected plans to enter the Hampton-Sidney College, but his hopes were doomed to disappointment. Just at this time his father's death occurred, which forced him to abandon his plans and assume command of the farm.

He accepted the change gracefully, and devoted himself assiduously to the work before him. Since he took charge of the farm no one has labored more ardently or unceasingly for everything that was likely to ameliorate the agricultural interests of his community.

He has displayed great interest in all things which would be of benefit to the farmers. He was largely instrumental in organizing the Granges in Berkeley and Jefferson Counties. His good work did not go unrewarded. In recognition of his services and eminent capabilities he was elected Secretary of the West Virginia State Grange in 1888. He filled this position so satisfactorily that he was elected to a second term, which he is now filling.

In 1891 Mr. Turner was elected Secretary of the Morgan's Grove Agricultural, Live Stock, and Mechanical Association. The enthusiasm which he instilled in his work was plainly evident by future events. The fair that year was an unprecedented success in every way. Financially the success was great, and the interest manifested was far above that of any previously held fair. The directors of the association were quick to perceive that he was at the bottom of the success, and due credit was given him. His indomitable efforts were rewarded by his being re-elected to the position of Secretary of the association.

As a writer he is beginning to acquire a reputation. He is a frequent and valued contributor to the various agricultural journals, and his experience in farming, coupled with his knowledge of the English language, makes his articles acceptable to any paper. He is one of the associate editors of the *Ohio Valley Farmer*, a paper published in Wheeling, W. Va.

When the State Board of Agriculture was organized in 1891 the members were awake to the fact that in choosing a Secretary it was a vital necessity that, in addition to ability to perform the multifarious and laborious duties of the office, the man selected should also be a practical farmer and possessed of a sufficient knowledge of journalism to conduct the *Farm Bulletin*, prepare statistical reports, and other publications which the Board proposed to make a portion of the duties of the office.

Mr. Turner was selected as being capable for filling the office, and the wisdom of the Board's selection soon became apparent. Under the Secretary's direction and editorship the publications made from time to time have proven of great interest to the farmers of the State, and the newly-created Department of Agriculture of West Virginia, when fully established, bids fair to become an important branch of the State service.

### Interesting Farm Statistics

According to the census returns farm lands in Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Ohio, and Michigan are practically of equal value and are rated from \$33.74 to \$65.16 per acre. The next in value are Indiana, Illinois, and Wisconsin, valued at \$23.30 to \$32.33 per acre. Following these come Iowa, Colorado, Utah, and California, valued at \$22.92 to \$25.62 per acre. Then follow Virginia, West Virginia, North Carolina, Kentucky, Tennessee, Mississippi, Louisiana, Arkansas, Missouri, Kansas, Nebraska, Minnesota, Dakota, Wyoming, Montana, New Mexico, Arizona, Nevada, Idaho, Oregon, and Washington, at \$5.86 to \$14.45 per acre.

Census statistics further show that in 1890 there were in the United States 4,008,907 farms, 74.5 per cent. of which were cultivated by the owners, eight per cent. by tenants who paid money rental, and 17.5 per cent. by tenants on shares. Illinois had the greatest number of farms, viz., 255,741; Ohio comes next with 247,189; New York had 241,058, and Pennsylvania 213,542. Arizona had only 767, and Nevada 1,404.

### The First Mowing Machine.

In 1822 a patent was issued to Jeremiah Bailey, of Pennsylvania, for a mowing machine, and he constructed two machines the same year. It is believed that these were the first ever made. A number of years later a patent for improvement on this machine was secured and some 50 of the improved machines were built. Only two of the original pattern were ever made, and one of them is still in existence, owned by Samuel Worth, of Marshallton, Pa. He will exhibit it at the World's Fair, where, as a pioneer in agricultural machinery, it will attract much attention. The knife of the machine is circular, and had a combined rotary and forward motion.

## EUROPEAN AGRICULTURE.

### The Yield this Year Will be Far Below the Demand.

Special correspondence THE AMERICAN FARMER.

PARIS, Sept. 1, 1892.



FFICIOUS estimates fix at 38,000,000 bushels the deficiency in this season's grain harvest for France. It will be for America, Australia, and India to supply that quantity of short-food wants. It is only once in 10 years that the country is able to produce the necessary amount of cereals to meet the needs of its population of 38,000,000. Last year the deficiency was a sixth; on the present harvest, a tenth. The average acreage yield all over France is hardly 11½ bushels per acre, yet there are farmers able to produce 30 bushels by ordinary care, and 50 bushels by scientific effort. To obtain these returns the soil must be in good heart and tilth, money expended on manure or commercial fertilizers, the best suitable seed obtained, and the bed for it superiorly prepared. As a general rule, French farmers rely on Winter-sown wheat, and nitrate top-dressings in Spring. The smallness of the holdings in France is rather a serious drawback against intensive culture, and the more farming approaches the lines of a manufacturing industry, allowing of the utilization of modern machinery and scientific combinations, the more it will be profitable.

During the year ending July 31, 1892, France imported 30,000,000 quintals of cereals and 888,000 of flour. The duty levied was \$20,000,000, and the major part of the sum fell on American imports. The full duty is now struck, viz., \$10 per ton on grain, and \$16 per ton on flour. France cannot complain if the States bleed her a little in return on the customs through her wines, silks, and ornamental goods. Nor, indeed, do the French grumble at the New York dues; they lament rather the obstacles and delays caused by the officials passing the imports through the customs.

If the vintage, which will commence in three weeks, be deficient in quantity this season in France, that will be made good by quality; the grapes are expected to yield an excellent all-round full-bodied wine. Thus there will be less necessity to resort to German potato and mangold whiskies to give it strength and beadiness. Since the phylloxera has destroyed one-third of the French vineyards, representing more than 2,000,000 acres, the wine merchants have to annually import, chiefly from Spain, Portugal, and the French African possessions, 270,000,000 gallons of wine. The importations will be more than ever crippled this year, as no treaty has yet been arranged between France and Spain, while Italy is likely to send more under the maximum tariff than its predecessor, which literally excluded her wines. Tunisia is rapidly cutting out Algeria in the production of wine; it is a nourishing wine, having a port flavor, and that will become mild as the processes of making the wine are better understood. Much of the wine France imports is destined for mixing, both for home consumption and the foreign market. For the former demand it is "blended" with the wine manufactured from raisins. The chemical world is divided as to the value of raisin wine. Hippocrates swears it is excellent when not adulterated, and Galen asserts it is intrinsically bad. The competition of other countries with France for the foreign wine market, and the production of these same countries—the States, Argentine, Australia, etc.—for their own wants, have reduced by a third the blended wines of French exportation. And this exportation must diminish as the newer countries render their outputs mellow—a mere question of time.

That prospect has not been lost sight of by the cultivators of France, and explains why several of the extinct vineyards, wherever suitable, are being cropped with wheat, barley, and rye, when green manure is plowed under, to increase the humus and moisture of the soil, followed by Spring dressings of nitrate. The siloing of maize, clovers, sainfoin, rye, etc., in the warm and arid districts of southern France will enable these regions to be more independent of vineyards, and avoid the cost of protecting the vines against disease, and incurring the annual expense of a nitrate manuring. *En passant*, I may remark that the phylloxera has appeared at Epervay, the center of the champagne vines; a vigorous eradication of the suspected vines, and adding sulphuret of carbon, have apparently stayed the plague. It was by such summary processes that Switzerland dealt a definite blow to the bug. If no French champagne were forthcoming at the winding up of a banquet, many would consider the world was not worth living in. When Lucullus had only some thousands of denarii left, and insufficient to defray a supper, life had no more charms for him.

The potato crop will be magnificent this year, the tubers have escaped the fungus disease. Perhaps this exemption is largely due to the greater care devoted to the culture of the crop and the resolution to spray the enemy with the Bordeaux wash. As an esculent, the French are—I speak of the laboring and frugal classes—relying more and more on potatoes; in Paris, not only has the number of dealers in "fried" potatoes augmented, but they are now being sold boiled. For one cent a pound the farinaceous tuber can be purchased cooked; the economical have only to slice the potatoes, add a little American margarine, which is cutting out the Danish brand because viewed as better prepared, then some chopped sweet herbs; heat on a tin plate over a spirit lamp, and starvation is postponed.

Perhaps there is no crop after wheat that is tended with more studious care

than the potato, because there is none that so immediately reveals neglect. The soil is no longer the first at hand; it must be friable, humid, but not wet; well supplied with natural or commercial plant food—or, better, with both combined—and last, not least, the seed. Whether planted whole or in cuts is a matter to be decided by experience, but the quality of the seed cannot be trifled with. It ought to have a "pedigree" and be to the manor born, not so much radically changing the seed as exercising judicious improvements or ameliorations in local varieties. Indeed, the general question of regional seed raising is becoming so important every year that the French Government will have to yield to the demand to establish seed farms, and such working in with experiment stations would pay. Table potatoes are expected to yield this Autumn from seven to eight tons per acre, and tubers for the mill or still double that weight. Some economic writers maintain that were France on a par with Germany in the production of potato whisky, and were the Government, as in Switzerland, to have a monopoly in the sale of the alcohols, the receipts from that new working of the excise would suffice to meet the revenue wants—\$650,000,000 per annum.

The beet crop has been so "badgered" by the weather that it appears to relinquish the struggle to make up for early Summer drawbacks. It is only within the last fortnight that the scorching sun has injured prospects, and now is the busiest epoch with the plant for elaborating its sugar. Last year the total yield of beet was 616,000 tons, or less by 84,000 tons than in 1889, '90. The diminution will be more marked for the current harvest; however, if the juice be richer, the result in point of sugar may not be different. Then, again, when roots are richer they command a higher price, which explains why the latter can vary by \$1.50 per ton. Respecting the richness of juice in Germany and Russia, it can reach as high as 15 per cent; now in France, where the soil for beet is prepared as carefully as in Germany, and so superior to the like operations in Muscovy, and with the same variety of seed as sown in these countries, the yield of juice is from four to six per cent. less rich.

In the controversies bearing on the planting of cut or whole potatoes for seed, no hard and just conclusion can be drawn, and in this, as in similar tie results, it is best for farmers to test the matter by direct experiment, but under positively the same conditions. Observe how often analogous experiments are undertaken without adhering to the conditions of the trial. It was by evading the fixed formula of M. Girard for the preparation of the Bordeaux wash for potato leaves to destroy the pest that the solution frequently failed. One fact about potato culture is certain, that saltpeter is the best commercial fertilizer for the tuber, and that super-phosphate and sulphate of potash are not only useless, but frequently inimical.

There are 20 Dairy Schools in France and several co-operative "pools" for working the milk into butter and cheese. The "pools" suffer from want of capital, and are likely to be superseded by companies fitting up rival establishments and then having farmers at their mercy. In Switzerland a cheese factory pledges its solvability to the extent of two-thirds, and issues coupons to farmers *pro rata* to their financial ability, that first hands selling cattle feed, implements, etc., accept as cash. What farmers stand next to most in need of is the selling of their products by first hands.

The plan of ameliorating races of stock from judicious local selections, rather than by crossings from foreign animals, is assuming vast proportions.

The immigration of farm helps to the towns to seek other kind of employment continues to augment.—CULTOR.

#### Moving Men and Grain.

We are improving on rapid transit. Speed is the modern ambition. It is contagious, and everybody is learning to despise equine locomotion and pedestrian pedals. The horse car is in its decadence, and the exhaustion of shoe leather is indefinitely postponed. Another decade will see the mule in the backwoods, and undeveloped legs in attenuated pantaloons. Flight is no longer associated with a cashier en route to Canada, or a modern Adam making tracts with Eve to an adjoining County on a matrimonial excursion, but with all we do, except in paying bills or visiting the sick. We eat by the time table and sleep by the alarm. We make fortunes and lose them, in less time than a Spring fowl finds its way from the egg to the pie. We swallow literature as we do capsules, with mastication as a forgotten art and a digested thought unknown in the upper bowels. In short, hustling has become a disease for which there is seemingly no cure but sciatica or an impaired anatomy. Of course inventive and mechanical genius keeps time with the music, and next to its abilities in killing soldiers at a short notice, we note its efforts in the transportation of men and baggage. A Wisconsin man says the *Age of Steel* has invented a new motor with a Greek name. It is called the Olistkokine, a word which by the aid of a lexicon and the inventor includes the ideas of sliding and moving. It is intended as a substitute for the old-time wheel, and it is claimed to be available with all kinds of vehicles on floors, streets, and roads, from a perambulator to a fire engine.

Akron, O., has secured a motor that may ultimately revolutionize our street car systems. By this motor the power is communicated directly to the wheel, dispensing with complicated gearing and having no need of the second motor now necessary in electrical traction. To this invention we may add the project now in consideration of piping grain from Chicago to the seaboard, by means of iron pipes, and at the minimized cost of three cents per bushel. A working model of this new transportation scheme is promised Chicago in three months. The estimated cost of the initial line is \$20,000,000. Leaving time to test the validity of these claims to improved transportation, it is yet a fact that we are fairly in a race with time, and are discounting distance by shortening a mile at both ends.



## SOUTH AMERICAN WOOL.

### The Wool Industries of the Different Countries of the Southern Continent.

BY F. J. WILSON.



**WHILE** we are making such great progress in our sheep and wool industry it will probably be of value to see what success is attending the efforts of the countries which enter into competition with us. The industry in South America can be said to be in its incipency, and the great strides which have been made will no doubt be a surprise.

The increase in the industry in the Argentine Republic is something wonderful, and nothing was of more help to the sheep-raising business than our civil war. The sheep was an almost despised animal in that country in 1840. What animals there were at that time in the country were worthless; they were allowed to run the pampas wild and not regarded as a desirable article of food. Worse still, the wool was of no value, and was not worth carting to town, and was frequently used for litter.

Like everything else, a change came. A few Scotch and Irish farmers emigrated to that country, and they foresaw the wonderful possibilities of the Argentine Republic as a sheep and wool-producing country. Their first steps were to import some fine sheep of the Negretti and ram breed and cross them with the native stock. This was 38 years ago, and from that time dates the beginning of the industry.

Figures tell the tale more plainly than words. The total number of sheep in the Argentine Republic in 1852 was 5,500,000, but when the foreign market had been established this number had increased to 14,000,000 in 1860. In 1861 our civil war broke out and wool was in demand in our country. The effect upon the industry in the Argentine Republic is clearly seen when, in 1867, the number of sheep in the country was estimated to be 40,072,312. So great was the demand for wool that everybody who could raise enough money to purchase a flock of sheep did so, and went into the business.

The impetus which our war gave to the business has never abated. In 1877, according to official estimates, the number of sheep in the country was 48,498,688, and in 1888 the number had increased to 66,701,097. The value of these, as given by Senor Carrasco, director of the census, would amount in our currency to \$147,233,702.

The province of Buenos Ayres has the largest number of sheep, and is the center of the wool industry. This is quite natural, since the boundless pampas in that province is covered with rich, succulent grass, and affords excellent pasturage to the foot of the Andes. While the other provinces have a large number of sheep, the number is nowhere near equal to that of the Buenos Ayres province.

The number of sheep credited to be in the country by the latest census places it as the first sheep-raising country in the world. Australia, according to the latest report from that country, is the next leading country, and the United States ranks as third.

Strange as it might seem, the wool clip of the country bears a very small proportion to the number of sheep. The estimate for the world's clip for 1886 gives the following table:

Country.	No. of Sheep.	Total wool clip, pounds.	Clip per sheep, pounds.
Argentine Republic.....	66,000,000	261,000,000	3.8
Australia.....	66,000,000	390,000,000	5.8
United States.....	48,000,000	210,000,000	4.2
Cape Colony.....	11,000,000	52,000,000	4.7
European countries.....	194,000,000	665,000,000	3.4
Other countries.....	19,000,000	76,000,000	4.

However, despite this seemingly large yield, the shrinkage in the Argentine wool is very great, being 65 per cent., or nearly two-thirds of the entire clip. In a clean yield it will be seen that the Argentine Republic is really below the United States.

Without a doubt sheep raising will continue to be one of the leading industries of the Argentine Republic. There are millions of acres all through the vast interior, and running along the Andes away down to the extreme limits of Patagonia. These, whatever else may be said of the country, can be used for sheep pasturage. Already, with the progress of agriculture, the sheep are moving farther and farther out, and with the development of the country we may ultimately expect to see all the vast extent of the pampa now beyond the reach of railways or markets filled with sheep and cattle.

Uruguay is essentially a pastoral country, and but little attention has been paid to scientific sheep or cattle farming. The native sheep were those introduced from Spain more than 100 years ago, and they have been bred, but no precaution was taken for selecting the best animals for reproductions. Neither were there any discriminations made in slaughtering sheep, and the best sheep in a flock were killed with the poorest.

Cattle raising was formerly the chief industry of this country, but of late attention has been turned to sheep, and the progress has been satisfactory in every respect. The native sheep, peculiar on account of their long, straight wool, greatly resembling hair, are fast disappearing. They were commonly known as Creole sheep; were of very slight build, and their wool was mostly used for mattresses.

During the past few years the grade of wool has increased considerably, and this can be attributed to the introduction of foreign sheep. These foreign sheep were first introduced in 1886, and they have not only made an excellent record but have improved materially the weight, character, and the constitution of the sheep.

The English breeds, which are quite extensive in numbers, are the Lincoln, Downs, and Romney Marsh. The Negretti, bred in Germany from Spanish stock; Rambouillets, bred in France, and Vermont merinos, bred in the United States, form the merino stock of the country. For the production of meat or carcass it has been found that the English breeds or the Rambouillets are the best, but for hardiness the American merino is the most desirable.

The Downs thrive well in the hilly, hard-grass districts, and in small numbers and small inclosures they give the best results by far, both for breeding and fattening. The great detriment to sheep raising in this country seems to be the lack of care which is bestowed upon the animals. The great number of sheep have no covering or protection against cold weather or rain, and only the fine or breeding flocks are protected by sheds or otherwise.

The sheep are troubled with foot rot, flux, scab, and every imaginable intestinal parasite in windpipe, lungs, and stomach. Scab is quite common, particularly in wet seasons, and there is a law which obliges the curing of all scabby sheep. Foot rot is common only in wet seasons.

The number of sheep in Uruguay in 1889 was estimated at 12,000,000, and this is 30 per cent. less than the number the year previous. The decrease was due to the effects of disease caused by an exceedingly wet season. The clip from this number of sheep was estimated at 42,000,000 pounds, with a value of \$714,000, or exactly 17 cents per pound all around.

The sheep roam in flocks of from 1,200 to 1,500, and the value of each, taken as they run, is from \$1.60 to \$2.40 each. When the sheep are being fattened the number of the flock is reduced greatly. From 200 to 500 is all that are allowed to run together. The sheep kings live on their ranches, or *estancias*, as they are called, but there are quite a number of small *rancheros*, or sheep farms, the occupants of which are merely renters and not proprietors.

Like in the Argentine Republic, neither the sheep nor wool are ever washed in Uruguay, and the percentage of dirt and grease in wool is from 25 to 30 per cent. The average yield of wool per sheep is three and one-half pounds, and the shrinkage is from 40 to 50 per cent. The wool is shipped in larger bales from this country than that from any other country. A bale from Uruguay weighs 875 pounds, an Australian bale weighs 355 pounds, and a Cape Colony bale weighs in the vicinity of 270 pounds.

With all her vast resources Brazil is not up to the times. Millions and millions of acres of land which could be profitably used as sheep land is allowed to run idle. The wool industry is unimportant, and is confined mainly to one State, namely, Rio Grande do Sul. In some sections of the country, however, it is said that sheep could not be raised, since the climate is unsuitable for the business. Since Rio Grande do Sul is the only State which makes any show of sheep raising, we will deal exclusively with that section.

No statistics as to the number of sheep are kept, and as a consequence it is impossible to give, or even estimate, the number of sheep in the State. The only information we can find is that it is estimated that the wool clip for 1889 was about 850,000 kilograms. A kilogram is equal to 2.2046 of our pounds, and therefore the clip would equal 1,873,910 pounds. The State exported 223,268 kilograms of wool to the United States, about 100,000 kilograms to Germany and France, and 500,000 kilograms are used by a native woolen factory.

The wool is of very poor quality, as a rule, and in the State of Rio Grande do Sul it is sold at from nine to 11 cents per pound. The latter price is only obtained for exceptionally good wool. The sheep, which are principally native, are generally large, producing the coarser grades of wool. They are worth from 90 cents to \$1.80 per head, and it is estimated that from one and one-half to two kilograms of wool is secured from each.

Very little attention is paid to this industry. The production is increasing very little, if any, and the inhabitants seem to care hardly anything for their stock. The animals are allowed to roam wild, and no care whatever is taken for the selection of the best stock for breeding purposes.

The other countries of South America are but little interested in sheep, and beyond keeping flocks for home use they do not make a specialty of sheep raising. Patagonia, as is well known, is an extensive cattle raising country, but the fact is to be deplored that no statistics are kept of the number of its animals.

#### The Origin of Some Flower Names.

It is interesting to trace the names of plants. For instance, the fuchsia, dahlia, and magnolia were called after three ancient and celebrated botanists, Fuchs, Dahl, and Magnol. Carrot means red, and Hawthorne is the Dutch for Hedge-thorne. It was once a custom to thread strawberries on a straw for sale, and so they received their name. Lavandula is the Latin name for lavender, and is said to come from the verb lavare, meaning to wash. We can trace the connection here by remembering that the plant was formerly used a great deal in the clothes press. Also, what is now a "laundry" was once a "lavatory." In Roman Catholic countries flowers were often given the names of saints or named after the Virgin, as St. John's wort, Basil-thyme, Marigold, and Rosemary.

Northern Mexico had a bad season this year. The drouth prevailed, and it is feared that there will be a total crop failure.



## FARMERS IN COUNCIL.

### A Highly-Successful Meeting of the Lynchburg (Va.) Farmers' Institute.

**T**HE LYNCHBURG (Va.) Farmers' Institute, under the auspices of the State Board of the Commonwealth of Virginia, for the Sixth and Tenth Congressional Districts, was held Sept. 7, 8, and 9, 1892. The Grand Opera House was obtained for the purpose, and the "City of Ascents," on the James River, did all that could be desired to entertain the farmers of that region, and right well do they know how to bestow their hospitalities.

The first day's work was inaugurated by Hon. Thomas Whitehead, the venerable and enthusiastic Commissioner of Agriculture of Virginia, in a neat statement of the objects and purposes of the meeting.

The Institute was opened with prayer by the Rev. Mr. Wilmer, pastor of Epiphany Episcopal Church of Lynchburg. The most beautiful music was discoursed by the orchestra, which was in constant attendance during the entire meeting.

Commissioner Whitehead presided at the first session, and introduced Col. J. R. Hutter, of Campbell County, who delivered the address of welcome. Col. Hutter's address was a perfect gem from first to last.

Maj. R. V. Gaines, of Charlotte County, responded to the address of welcome, on behalf of the Sixth District in a most happy speech. He said: "These institutes were a kind of agricultural college on wheels for farmers, where every question relative to agriculture could be discussed, no matter what its nature." He was often interrupted in his remarks by the applause of his hearers.

Hon. A. Koiner, of Augusta County, responded on behalf of the Tenth District. He, like Maj. Gaines, was an ardent agriculturist, lived on a farm, and knew the situation and wants of farmers. Mr. Koiner's address was highly interesting, and at times amusing. He was in full sympathy with farming industries, and offered many timely suggestions on almost every line pertaining to the farmer's calling in Virginia. This was followed by some explanations and announcements by the Commissioner of Agriculture, which closed the morning session. The institute reassembled at 3 p. m.

R. M. Bell, of Illinois, was introduced by Commissioner Whitehead as a practical sheep raiser, and was there to deliver a lecture on "Sheep Husbandry in Virginia." This was followed by a general discussion of the question of sheep raising by quite a number of practical gentlemen who are prominent sheep raisers. The information elicited was of the most interesting character, showing the advantages of Virginia and the adaptation of the State for the most advanced systems of the business. The much-vexed question of sheep-killing dogs was discussed from the most common-sense standpoints. The sheep industry in Virginia is on a sound basis. The whole session was given to the consideration of this subject.

The first session of the second day was consumed by Prof. H. E. Alvord, of the Maryland Agricultural College. His subject was "Cornstalks—Their Value as Food for Cattle and Dairy Cattle." The Professor had been to the very bottom of his subject with scientific investigations, and displayed in vials and jars all there was to be seen and found, by carefully conducted chemical analyses, from cornstalks—the fat, the ash, the waters, powders, etc., extracted from the leaves, the stalk above the ears, and the stalk below the ears or the butts.

The lecture was on a new theme, but those who listened were amazed at the facts brought out, and were convinced that in the waste of cornstalks the farmers were fearful losers. The remedy for all this loss was very practical, and many a man went away to think on the subject and to find increased value in what has been a waste.

The afternoon was given to Prof. W. B. Alvord, of the Virginia Agricultural College, on "Intensive Farming," in which was shown much interest by many farmers. This address alone was worth all that the Institute cost to Virginia farmers, who are seeking the best way to handle soils and secure the highest results.

"Bees and Beekeeping," by Wm. M. Evans, Esq., of Amherst, was a highly-interesting lecture, scientifically and practically presented. Mr. Evans has given a lifetime to the study and management of the apiary. His results financially have been very successful, and interested his hearers. He believes that honey such as Virginia produces will cure the sick and make the weak strong. The learned lecturer explained the origin of "honey dew" on the leaves of trees in the most intelligent manner. The fact that pine leaves had honey dew was new to some, and that it was the most healthful of all honey was explained.

The magnificent program provided contained such vital subjects to Virginia farmers as the "Cultivation and Curing of Yellow Tobacco"; "Producing and Handling Dark Shipping Tobacco," discussed by various speakers from the different parts of lower Virginia. "Truck Farming," by T. W. Ballentine, of Norfolk, Va.; "Hog Cholera and its Prevention," by Prof. A. H. Tuttle, of the University of Virginia; "Public Roads," by J. B. Polle, of New York; "Construction of Dirt Roads," by Prof. C. E. Vawter, of Miller Manual Labor School; "Building of Macadam Roads," by Mr. Thomas, of Lynchburg, Va., closed the second day's morning session.

The afternoon session was full of interest to men engaged in the grape industry of Virginia. This lecture was delivered by Mr. H. L. Lyman, of Charlottesville, Va., on "Grapes and Wines," in which the lecturer is largely engaged, and who is

regarded as both a practical and scientific expert. Mr. Lyman is a most fluent speaker, and made his lecture the telling one of the Institute in beauty of diction and useful information. The third and last day of the Institute was consumed in the "Advantages of Improved Agricultural Implements," by Col. Ashton Starke, of Richmond; "Co-operation Among Farmers in Buying and Selling for the Farm," by Col. C. H. Pierson, of Richmond; "Agricultural Seed—Advantages of Control and Inspection," by Col. J. M. McBryde, President of Virginia Agricultural College; "The Apple and its Enemies," by Prof. W. B. Alwood, of Blacksburg, Va.; "The Use of Commercial Fertilizers—Their Inspection and Control," by Commissioner Whitehead; "Poultry Keeping," by J. F. Jackson, Editor of the *Southern Planter*. This completed the plan so wisely provided by the managers for the instruction of the farmers at the Lynchburg Farmers' Institute.

It was a mortification to the officers of the Institute that a large number of farmers were not present on this occasion to hear what was intended for their good. Those who were present will never forget the valuable topics discussed by the lecturers, and more especially by the intelligent farmers who were present, a large number of whom showed the interest they felt in the work of the Institute. The wonder remains why are farmers so indifferent to their own improvement in matters pertaining to their own progress in scientific stock raising and methods of farming? It is the intention of Commissioner Whitehead to embody all these lectures in an annual report and send them out broadcast to the farmers of Virginia. If he cannot get them to attend Institutes, he intends finding them at their homes with a report which they can read.

#### Life in Saxony.

This is a delightful city. It is amusing to see every morning a large crowd of men with brooms made of switches, and with watering cans, sprinkling first and then sweeping the streets. We occupy rooms on the first floor, and in front of us is an open square about 150 by 400 feet, with fountains, flowers, walks, and beautiful grass. Several barefoot old women cut and clean the grass almost daily. Women here carry up coal in hods on their backs, work in the fields and gardens, and are barefooted. At Kensington, 30 miles distant, we saw them mixing mortar, carrying the hod, also sweeping the streets and then carrying away the sweepings in hods on their backs or shoulders. Saxony is said to be the most thickly populated (aside from the cities) of the known world. Harvest is now nearly done, and from city to city no fences are to be seen. The entire land is divided into small tracts hardly large enough to turn a mowing machine in, and is cultivated like a garden. Rye, wheat, oats, barley, buckwheat, potatoes, turnips, and sugar beets are the staples.

Reaping is strictly hand work, and mostly woman's work, and the gleanings takes up even the last straw. We hardly saw a cow all the way from Berlin to this city, and yet plenty of meat is found in the markets.

For articles of manufacture one mark (24 cents in our money) will purchase about as much as \$1 in America but food here is high. Good butter sells for 1.60 marks per German pound, on the average. Ham, .60 to .70 marks. Beef, cheapest, .75 marks, and pork .60 marks per pound German. I saw a large loaf of German black bread about the size of a good ham, price 1.80 marks, or 45 cents in our money. How the poor get along is a mystery to me. A house servant girl usually gets 125 marks per year. Tradesmen get better wages than formerly, for now they receive from four to five marks per day. I had my hair cut the other day in Leipzig very nicely for seven and a half cents. The common street car fare for ordinary distances is two and a half cents.

This city of Dresden is a great center for American visitors, and one picture dealer said all such stores as his would have to close up if it were not for the American patronage. The greatest galleries of the old masters are here. Music and art go hand in hand among the cultured. In the choir of one of the churches are 60 people, and includes all classes of modern musical instruments accompanied by most masterly singing.

The drug stores have the prices regulated by law. A bottle of arnica, seven and a half cents; a package of soda, two and a half cents, put up and labeled. The physicians usually charge two marks, about 48 cents, for each visit. How different from America all this is, and why so much discontent among the American laboring men?

#### A Plant that Eats Insects.

Among the curiosities in the vegetable world is the *Pitcher plant*. It has been found growing in the peat bogs of northern Ohio, and instead of being fed off of, enjoys the distinction of feeding off of insects. Its leaves are radial and hollow, suggesting the name of pitcher. These are filled with a liquid which drowns and then dissolves insects, and they are imbibed through the inner coating of the leaf and assimilated by the plant. The cup-shaped leaf has a coating of bristles pointing downward, so that it is easy for insects to enter, but quite impossible to escape from.

#### Traveling Stones.

Stones have been found in Nevada resembling the famous traveling stones of Australia. They are about the size of a walnut, ivory in nature, and perfectly round. They are composed largely of magnetic iron ore, so that when placed within two or three feet of each other on a smooth surface they travel toward each other until they meet at a common center. One of them removed from the bunch to a distance of four feet will return, but if taken five feet away will remain motionless.



## PROGRESSIVE AGRICULTURE.

### The Most Recent Discoveries, Developments, and Ideas in the Science of Farming.

#### The Ripening of Cheese.



THE FORMER papers in THE AMERICAN FARMER on the fermentations of milk have also important bearings on cheese making. If the bacteria are unavoidable allies in the dairy in so far as milk and butter are concerned, they become indispensable to the cheese manufacturer. If bacteria be not present in ripening the cream, the butter may be tasteless or undesirable; but in the matter of cheese, there would be absolutely no such thing as palatable cheese without the action of bacteria. The mere curdled casein of milk is a food which is not particularly palatable, and yet new cheese is nothing but such a product pressed into convenient form. The flavor of cheese and the delicate aroma which is so prized in many forms thereof, as well as the more undesirable odors which sometimes arise from well-ripened cheese, are due almost exclusively to the action of micro-organisms which produce certain decompositions and changes in the substances of which cheese is made. This process of ripening may go on for weeks or even months, according to the degree of activity of the bacteria and the character of the cheese which is to be made. The effect of bacteria in the ripening of cheese is admirably illustrated by experiments which show that when fresh cheese is sterilized it remains unchanged and unripened for an indefinite time. Such cheese remains totally undesirable and unsalable. The number of micro-organisms which may exist in the cheese varies, of course, within wide limits, as has been shown in the case of milk. In 1-28 of an ounce (one gram), numbers of organisms have been found varying from 850,000 to 5,600,000, the number increasing rather than diminishing during the process of ripening. There is one special organism which seems to be particularly active in cheese ripening. This is the organism which is found to steadily increase in numbers at the expense of the numbers of other organisms present. This species of micro-organism is always found in cheese, although other kinds are sometimes present and sometimes absent. It is therefore reasonable to suppose that this particular organism is the one which is especially connected with cheese ripening.

Very few observations have been made in this country in regard to the abnormal or irregular ripening of cheese. The point toward which every cheese-maker marches is the one which will secure him a uniform article which he can offer with some degree of assurance to the trade. If one month the manufacturer puts on a brand of cheese with certain flavor and properties, and the next month sells the same brand with different flavor and properties, his brand will soon fall into discredit. The chief reason for this irregularity in the ripening of cheese is doubtless due to the action of micro-organisms. If those micro-organisms which tend to produce a poor cheese get the start of that kind which would produce a good cheese, the product cannot fail of being inferior. All such abnormal products known as "black cheese," "bitter cheese," and "red cheese" are undoubtedly caused by the growth of these deleterious organisms. Indeed, it has been shown, experimentally, that if milk be inoculated with deleterious micro-organisms and cheese be made from this milk, under conditions which would otherwise produce good results, a poor and unsalable article is the result. But while abnormal ripening is undoubtedly due to the growth of an improper species of organism, we cannot at present determine how far the variations in the ripening are due to the different species of organisms planted in the curd. Each doubtless has its effect, and much further study is needed in this direction.

Prof. Conn says: "It is evident that the presence of bacteria in cheese is inevitable. The milk from which it was made always contained them, and when made into cheese part of the bacteria at least will be inclosed in the cheese. Here they find proper conditions for growth. The conditions are not very favorable, it is true, for the density of the cheese prevents ready access of air, and the organisms suffer in consequence, except at the surface. The lack of moisture is also, doubtless, a disadvantage. But in spite of these disadvantages the bacteria grow slowly and soon produce profound chemical changes. They give rise to the peptonizing ferment which acts upon the casein, rendering it partly soluble. Besides this, they induce numerous decomposition changes, the total result of which is the production of the rich, delicately-flavored cheese for the market. But though many chemical studies have been made of ripening cheese, we are not in condition at the present time to follow the process beyond stating the few salient facts already mentioned. The cheese maker thus forces the bacteria to give him products for which he obtains a high price. Of course, so far as the food value of the cheese is concerned, it is the casein and the fat which render cheese valuable; but its market price depends not upon the quantity of the casein, but upon the flavor, and this flavor is supplied by micro-organisms. To a certain extent, also, it is true that the different flavors of the different cheeses are due to the action of different species of organisms in the ripening, although we know little in regard to this matter at the present time.

"What the practical application of these results will be in the future it is impossible to say. We have as yet only learned that there is a causal connection between the ripening and the micro-organisms, but the conditions affecting their

growth, the variety of species which can produce a normal ripening of cheese, whether different species of organisms will produce different-flavored cheeses, whether the cheeses of the market are due to different organisms used in the ripening or chiefly to different conditions under which they are grown, are all problems to be settled before any practical results can be expected. But we can confidently predict one result: If we ever do succeed in reducing the ripening of cheese to a systematic process and are able to use the proper species of organisms to produce it, we may expect an end of the cases of poisonous cheese, of which so many cases are on record. The poisons in these cheeses are due to the growth of mischievous organisms, and will be avoided when we learn to ripen cheese with pure cultures of the proper species of bacteria.

"We may then, perhaps, predict a time in the not distant future when both the butter maker and the cheese maker will make use of fresh milk. The butter maker will separate the cream by the centrifugal machine in as fresh a condition as possible, and will add to the cream an artificial ferment consisting of a pure culture of the proper bacteria, and then ripen his cream in the normal manner. The result will be uniformity. The cheese maker will in like manner inoculate fresh milk with an artificial ferment, and thus be able to control his product. Perhaps he will have a large variety of such ferments, each of which will produce for him a definite quality of cheese. To the dairy interest, therefore, the bacteriologist holds out the hope of uniformity. The time will come when the butter maker will always make good butter, and the cheese maker will be able in all cases to obtain exactly the kind of ripening he desires."

The preceding articles on milk, butter, and cheese have been based largely on the excellent investigation carried on for the Department of Agriculture by Prof. H. W. Conn. In most cases credit has been given to Prof. Conn in the article when his exact words have been used. There have also been introduced into the articles many observations and comments, for which, of course, Prof. Conn's work must not be held responsible; but it is desired here to extend to him full credit for the investigations on which the articles have been based. His entire work is published as "Experiment Station Bulletin No. 9," from the office of Experiment Stations of the United States Department of Agriculture.

#### Recent Creaming Experiments.

By whatever method milk is handled in the dairy or creamery it is impossible to recover all the fat which it contains in the butter. At every step of the process there is some little loss of fat. There is a mechanical loss through the adherence of milk, cream, and particles of butter to the apparatus used, and there is always some fat left in the skim milk and in the buttermilk, no matter what methods of creaming and churning are practiced. The sum of these losses may be very large or they may be insignificant, depending upon the system employed and the skill and carefulness of the dairyman. The causes of the loss of fat and the best methods of preventing it have been carefully studied by Dr. S. M. Babcock, Chemist of the Agricultural Experiment Station of Wisconsin. His results are published in Bulletin No. 29 of that Station.

**Percentage of Fat Obtained by Deep Setting.**—The method in use in Wisconsin at the present is chiefly the deep setting or the placing of the milk in deep cans for the purpose of allowing the cream to rise to the top. There are two styles of cans in general use, viz., the Cooley and the "Shotgun." The principle of both cans is the same, the only difference in them being in the method of removing the cream. With the Shotgun can the cream is removed from the top, by dipping, with a conical-shaped dipper especially designed for the purpose. In the Cooley can the skim milk is drawn off from the bottom of the can and the cream is left in the can. Careful experiments showed that when proper care was given to details there was no practical difference in the amount of cream recovered from the milk by these two methods. On the whole, however, it appears that greater care must be exercised with the Shotgun cans than with the Cooley. The practical similarity of the two cans having been determined, the experiments in creaming were carried on in one of them only, viz., the Cooley can.

**Quantity of Milk to be Left in the Can With the Cream.**—It is evident that in such a can as the Cooley, where the milk is to be drawn off at the bottom, it will be found that the percentage of fat left in the milk increases as the bottom of the cream layer is approached. It is, therefore, always necessary to leave a small portion of milk in the can in order to avoid any unnecessary loss of fat. Experiments showed that the milk in the can taken within two inches of the lower cream line contained an average of .3 per cent of fat; the milk within one inch of the cream line contained 1.4 per cent, while that portion of the milk within one-half inch of the cream line contained 3.3 per cent of fat. Another point, however, must be taken into consideration, viz., that if a considerable depth of milk be left in the can the percentage of cream is largely increased. For instance, it was found that when the milk was drawn off to within two inches of the lower cream line the percentage of cream was 29.85; that is, 100 pounds of milk would yield 29.85 pounds of cream. On the other hand, when the milk was drawn off to within one-half an inch of the cream line the percentage of cream obtained was 20.64. Now, in churning there is always a certain percentage of the fat left in the buttermilk. If a thick cream be churned, like the one last mentioned, the amount of buttermilk will be less than for a thin cream like the first mentioned. The result is that as the percentage of fat in the buttermilk is the same in both cases there will be a greater loss of fat in the buttermilk in churning the thin cream than in churning the thick. This being the case, the fat which is saved in the cream may be largely lost in the buttermilk. Experiments showed, in practice, that there was almost identically the same loss of fat eventually whether one or two inches of milk was left in the can with the cream. There



was, however, a very considerable increase in the loss of fat when the milk was drawn down to one-half inch of the bottom of the cream. In practice, therefore, the best results are obtained by drawing off the milk until the layer under the cream is from one to two inches deep. In the Cooley system, instead of a stop-cock for drawing off the cream, it may be drawn off by a syphon, which can be regulated to draw for different depths, according as the gage of the can shows the depth of the cream. The general rule to be followed in such cases, therefore, as indicated by the experiments made, is to set the syphon fully one inch below the lower layer of cream.

*Influence of the Character of Milk upon Cream.*—The percentage of fat which the milk contains must be taken into consideration in creaming experiments. In order to obtain a comparison between the efficiency of the deep-setting system and the centrifugal system, five different samples of milk were employed, containing the following percentages of fat, respectively: 5.46, 5.23, 4.56, 4.21, 3.85. Duplicate samples of these milks were creamed by the deep-setting process and also by the centrifugal process. The deep-setting system gave the following results: The milk was set as soon as possible after milking in ice water, and was skimmed after 15 to 20 hours, all the lots being treated as nearly as possible alike. They were skimmed to within two inches of the cream line. The average percentage of fat found in the skim milk from the different lots ranged as follows:

With the milk containing 5.46 per cent. of fat.		Loss.	
"	"	5.23	.28
"	"	4.56	.35
"	"	4.21	.36
"	"	3.85	.44

The result of the whole experiment shows that there is a general tendency in the rich milks to cream better than the poor milks, although there are occasional variations from this rule. The cows in furnishing the milk for all these experiments were treated alike, receiving the same food and care. The milks were handled in the same manner, care being taken to eliminate, as far as possible, all differences except those depending upon the character of the milk in the several lots. The number of cows in each lot was sufficiently large to overcome the individual peculiarities of any single animal, and give to the milk the character of that from a large herd. The same milks were treated by the centrifugal process in the Baby Separator, with the following results:

With the milk containing 5.46 per cent. of fat.		Loss.	
"	"	5.23	.08
"	"	4.56	.08
"	"	4.21	.08
"	"	3.85	.10

From these results it is seen that not only is there a very great saving of fat when the centrifugal process is employed, but also milks of various degrees of richness yield a skim milk which practically contains the same percentage of fat, viz., about .1 of one per cent. These experiments show conclusively the advantages of the centrifugal process over the deep-setting process.

#### The Baby Separator.

Probably the greatest advance made in dairy practice in recent times is due to the introduction of the centrifugal apparatus for the continuous separation of cream. While it is true that the centrifugal process is acknowledged to be the very best, yet on account of the expense of installing it it has been confined in this country to creameries and large dairies. The small farmer has not been able to use it with his own milk on account of the expense of the plant. The number of revolutions of the centrifugal machine is so great that with the machines which have heretofore been in use it has been found impossible to secure the proper degree of speed except by the application of power other than hand power. To avoid this difficulty numerous inventions of apparatus have been made which can be turned by hand, and among them is one known as the "Baby Separator No. 2." Dr. Babcock says that this machine is cheaper, more compact, and with reference to its capacity runs lighter than any other separator with which he is acquainted. The machine which is owned by the Wisconsin Station will separate the cream from about 300 pounds of milk per hour, leaving not more than .1 of one per cent. of fat in the skim milk. This is about one-third the capacity of an ordinary power machine when run to the same extent of extraction of the fat. The machine turns easily and is easily cleaned, and it is less trouble to separate the milk in this way by hand than it is to prepare the cans and the ice for the deep setting. The machine which was used in the experiments recorded above was run for over two months without any expense whatever for repairs. Part of the time it has been connected with a tread power operated by a yearling bull, thus relieving the services of one man for other purposes. As soon as three or four cows are milked to obtain a small supply, the machine is started so that soon after the milking is done the milk is entirely separated. Arranged in this way, the milk is in the best possible condition for separation, and the sweet skim milk, still warm from the cow, may be fed to calves or other stock. For the strictly analytical work the machine was turned by hand power with a regulator so as to give it a uniform speed. The milk was taken from the station herd, which was used for the experiments already described. In some cases the milk was separated immediately after milking, while the milk was still warm; in other cases it was allowed to stand two or three hours before skimming. If after standing the milk was found to be cooled below 80° F., it was warmed up to 80 or 90° F. and the process begun. As has been before noted, the average loss of fat in the skim milk was less than .1 of one per cent. Certainly no more efficient method than this could be desired for the use of the farmer who keeps only six or eight cows. It saves the trouble of keeping a milk house, setting with ice, skimming by hand,

and other laborious operations which necessarily attend the ordinary process of deep setting. It avoids, moreover, the possibility of the cream and milk becoming sour by the action of the micro-organisms which have already been described. For efficiency, economy, and purity it is to be commended to the farmers who keep a herd of five or more cows. The advantage of the separator is probably greater in actual practice than is shown in the above experimental comparison. The mechanical loss by the centrifugal process is naturally less through having no necessity for the transfer of cream from vessel to vessel, as is the case with deep setting. The cream from the separator is richer in fat than that from deep setting, and therefore is likely to churn better, give a less quantity of buttermilk, and thus avoid loss of butter fat in the buttermilk.

#### Cream Best Suited for Churning.

It has been shown by experiments that a cream which contains 25 per cent. of fat will churn most efficiently. If it is much richer than this it will be so thick when it is properly ripened that it cannot be churned to advantage in a box or barrel churn, as large quantities of cream adhere to the sides and revolve with them without being churned. With the first experiments with the Baby Separator it was so adjusted as to get a cream containing 30 per cent. of fat. This cream when properly ripened was too thick to churn well, and the loss of fat in the buttermilk amounted to from .5 to one per cent. By diluting this cream with about one-fifth its volume of water the fat in the buttermilk was reduced to about .2 per cent., and in some places as low as .15 per cent. Dr. Babcock supposes that this smaller percentage of fat was due entirely to having the cream reduced to a point where it could be uniformly churned. On the whole it is held that the separator cream which contains about 25 per cent. of fat will churn equally as well as the deep-setting cream which contains an average of 20 per cent. of fat.

The increased yield of butter per day when the separator was used amounted to about 1.5 pounds over that obtained from deep setting from a herd of 25 cows. This is equivalent to the butter from two ordinary cows. With deep setting, however, if ice be not freely used and every precaution taken for efficient work, the difference between the two systems would be much larger. Dr. Babcock says that the Baby Separator can be used to advantage in herds containing 10 cows, but for herds smaller than this he would recommend the deep-setting system. When the deep-setting system is used he recommends that the milk be set immediately after milking, and that sufficient ice be placed in the creaming tank to keep the temperature of the water below 50° F.

#### Effect of Delay in Setting Milk for Creaming.

Dr. Babcock also undertook a large number of experiments to show whether the creaming of milks of different composition would be similarly affected in the delay in setting when the deep-setting method, instead of the centrifugal, is used for the extraction of the cream. The character of the samples of milk used was the same as in the preceding experiments. Half of the samples of milk, after thorough mixing, was at once set in the usual way with ice. The other half was set in the same way after standing in the open air for intervals ranging from 15 minutes to three hours. The milk which was left standing in the open air was thoroughly mixed just previous to deep setting in ice. The time of skimming was the same in every case, usually 12 hours, so that each set of samples had the same length of time for the cream to come to the top. All comparative trials were skimmed in the same way by drawing off the milk to within one or two inches of the cream line. The same quantity of milk was taken for both sets of experiments. The size of the cans used varied from a capacity of 18 to 35 pounds, according to the amount of milk which was available for the experiment. In all cases the delayed milk yielded the larger percentage of cream. The average of the first lot of milk set immediately after milking gave 28.12 per cent. of cream. When the delay before setting was 15 minutes the average per cent. of cream rose to 30.28. The increase in the amount of fat was proportionally to the increase in the volume of the cream. In the samples delayed from 20 to 40 minutes the average percentage of cream obtained was 30.42, while in the same set of samples set immediately the average was 29.18. Where the delay in setting the milk was over 40 minutes the average percentage of cream obtained was 31.03, while in the same set of samples set immediately the average percentage was 28.94. In these tests the delayed milk was placed in the milk-room and no precaution taken to prevent it from cooling. The temperature of the delayed milk when set varied from day to day according to the temperature of the room and the time that the milk was exposed. The temperature of the milk set immediately ranged from 90 to 97° F., and averaged 95°. The temperature of the milks delayed 15 minutes varied from 85 to 96°, the average temperature being 92° F. The temperature of the milks delayed from 20 to 40 minutes ranged from 86 to 97°, and the average was 93° F. The milks delayed more than 40 minutes had an average temperature of 83° F. Further experiments showed that the efficiency of creaming, caused by delay in setting, is not materially improved by keeping the milk warm.

These results of Dr. Babcock's are somewhat different from those obtained at the Experiment Stations of Maine and New York (at Cornell), where experiments showed that there was no material difference in the creaming obtained by delay in setting. As a sample of the experiments it may be said that in 99 trials 70 showed more cream from the delayed setting; 16 samples had the same amount in both, and 13 only showed a larger amount by immediate setting. When, however, the loss of fat in the buttermilk is considered, the difference is in favor of the



immediate setting of the cream would be still more marked on account of the increase of the amount of buttermilk from the delayed portions. As a whole, therefore, it is found that while a larger volume of cream is usually obtained from delaying the setting of the milk, the actual increase in the amount of butter obtained is not noticeable because of the larger quantity of butter which is lost in the buttermilk. It is also found that the average percentage of butter fat left in the skim milk is greater in the delayed setting than in the immediate setting. As a mean of all the experiments it was found that the average percentage of fat left in the skim milk from the immediate setting was .27, while the average left in the milk from the delayed setting was .37 per cent. On the whole, therefore, it might be considered as quite well demonstrated that there is no gain in butter fat from delaying the setting, but on the contrary a loss due not only to the less perfect separation of the cream, but also, as has been before intimated, to the increased loss of butter in the buttermilk. With some herds, probably, there might be a variation from this rule. Dr. Babcock concludes, as the general result of his experiments, that delay in setting will cause a considerable loss with the milk from some herds and scarcely any with that of others. In general, however, to avoid the possibility of any such loss, it is recommended that the milk be set as soon as possible after milking.

#### Is the Use of Ice Profitable in Deep Setting?

According to Dr. Babcock's observations, there is a general impression among farmers that water from a well or spring, if it is changed occasionally, is cold enough to give a close creaming, and that when such water is available, ice is unnecessary in a creaming tank. In the State of Wisconsin the temperature of the water in ordinarily deep wells ranges from 45° to 50° F. in Summer. This temperature is probably low enough to give fairly good results if it can be maintained for a sufficient time, but when ice is not used the temperature changes rapidly, and will seldom be below 50°, and it is believed, as generally managed, will be at least 55° when the milk is placed in it. The warm milk naturally raises this temperature still higher, so that in a short time it exceeds the limit necessary to good results. On the other hand, where ice is used the initial temperature is usually below 45°, and is maintained with little variation below this point until the ice is all melted.

Experiments in regard to the temperature of creaming show that there is a rapid loss of fat by imperfect creaming as the temperature rises. When the temperature is kept at from 35 to 45° F., the average percentage of fat lost in the milk was .232. At an average temperature of 48° the average loss was .297 per cent. At an average temperature of from 54 to 56° the average loss was .746 per cent. At an average temperature of 58° the loss was .949 per cent. The experiments were all made with mixed milk from the herd, set precisely under the same conditions, with the exception of temperature. The skimming was performed in from 11 to 12 hours after the setting. When milk is set in spring water it is usually allowed to stand 24 hours before skimming, in which case the loss is materially diminished. On the whole, however, it seems to be extremely profitable to use ice, especially in countries where ice is easily saved during the Winter.

Dr. Babcock's general conclusion from the whole study is that in deep setting without ice, under the most favorable conditions, there is considerable loss, and where the water is above 50° F. the loss is excessive, and if the temperature be allowed to rise much above this the loss may, in some cases, reach as much as 25 per cent. of the total fat in the milk.

#### Methods of Determining the Amount of Butter Fat in Milk.

To the dairy farmer it is of the highest importance to know the character of the milk from his herd. Milk when sold to the creamery is valued chiefly on account of its content of butter. The other constituents of milk, viz., casein, milk, sugar, etc., remain sensibly constant, the chief variations in milk being in the amount of butter fat which it contains. It is not difficult to see that a milk which contains only 2½ per cent. of butter fat is much less valuable for almost any purpose, save cheese making alone, than a milk which contains five per cent. of fat. If the dairy farmer is selling his milk he wants to get full value for it, and if he has a very rich milk he would naturally expect a larger price than if he were selling a very poor milk. If the amount of butter fat which is present in milk had to be determined alone by strictly chemical methods, the process would be so long, tedious, and expensive as to render it inapplicable either for the use of the creamery or of the dairy farmer selling the milk. For this reason various methods have been devised for obtaining a quick and easy separation of the fat in a way so simple as to be easily practiced by the farmer himself. Four of these methods which have come into quite prominent use are the methods of Parsons, Short, Patrick, and Babcock. These methods are all based essentially upon the same idea, viz., the setting of the fat free from the milk by means of a strong acid, or mixture of acids, and the subsequent separation and measurement of the fat which is liberated. The method of Babcock may be taken as a typical one, and may be used as illustrative of the whole.

The method consists in making the test on a given volume of milk, a certain volume of commercial sulphuric acid (oil of vitrol) being added. Great care must be taken in handling the acid not to get any upon the skin or clothing, as it is very corrosive. If by accident any should be spilled upon the hands or clothes it should be washed off immediately with an abundance of water, and it is well to have some ammonia water at hand, which can then be applied. When oil of vitrol is mixed with milk in this way a rise in temperature takes place, and the solution, which is first nearly colorless, changes to a very dark brown, owing to the

action of the sulphuric acid upon the milk sugar and some of the other constituents of milk. The bottles which contain the samples should next be placed in a whirling machine and rotated at a rapid rate, by means of which the fat, which is lighter, comes to the position which is closest to the axis of the machine. The bottles are then filled up to a certain mark with hot water, and the amount of fat which has been separated is carefully measured.

In taking samples for analysis every precaution should be used to have the sample represent as nearly as possible the whole lot of milk from which it is taken. Milk fresh from the cow, while still warm and before the cream has separated in a layer, may be thoroughly mixed by pouring three or four times from one vessel to another. Samples taken at once from milk mixed in this way are the most satisfactory of any. Milk that has stood until a layer of cream has formed should be poured more times until the cream is thoroughly broken up and the whole appears homogeneous. It is impracticable to sample a large amount of sour milk, but a small sample of a pint to a quart may be thoroughly mixed by first adding about five per cent., by volume, of strong ammonia water, which will dissolve the curd and permit a uniform mixture to be made.

One of the chief obstacles to the system of paying for milk according to its value, as shown by the amount of fat which it contains, has been the fear that representative samples of each patron's milk could not be obtained at the factory without much trouble and expense. Experience has shown, however, that this fear is unfounded, and that any person competent to weigh the milk and keep the necessary records can take fair samples of each lot of milk received. In fact, the whole process of analysis does not require any more care and skill than any intelligent farmer can apply. The merit of the process consists, therefore, chiefly, not only in its exactitude, which is of a high character, but also in its simplicity, not requiring the services of a professional chemist.

The whole outfit costs only from \$10 to \$15, and can be had of any of the dealers in dairy supplies. When it is considered that such great interests are at stake it is certainly advisable that farmers who keep even a small herd of from 10 to 15 cows should be provided with this piece of apparatus. Especially if the farmer is going to buy a herd of cows, or even a single individual cow, would it be well to determine the character of the milk of the animal before making the purchase. This could be easily done by using such an apparatus as has been mentioned.

A full description of the apparatus, together with all the directions for using it, is contained in Bulletin No. 31 of the Agricultural Experiment Station of Wisconsin, and I doubt not that every reader of this article who desires more accurate information on the subject would be able to secure a copy of the above bulletin by addressing Dr. S. M. Babcock, Madison, Wis.

#### The Detection of Adulterations in Milk.

It has already been stated in these papers that the most usual methods of adulterating milk are either by adding water or by abstracting cream. When milk is sold on the percentage of fat which it contains there is no motive for practicing either form of adulteration. When, however, milk is sold as a beverage, there is a strong temptation to remove a part of the cream, or else add water to the whole milk.

There is no trouble in detecting this form of adulteration by simply determining the percentage of fat, either by the volumetric method, which has just been described, or by the older chemical methods of extracting the fat with ether or benzine and weighing the dried extract. There are also other methods of detecting such adulterations, based upon the changes in specific gravity which a milk undergoes when it has been tampered with in any way. The butter fat being lighter than the other constituents of the milk, its removal always causes an increase in density. If, therefore, the fat alone be removed the increase in density would at once reveal the fraud. For determining this density an instrument is used known as a lactometer. It is a weighted glass bulb, with a slender graduated stem on which the density of normal milk is marked, and also figures showing the variations from this normal point. The removal of the fat would of course always change the relation of the total solids in the milk to the water present; so it is possible, by accurately-constructed tables, to determine whether or not a milk has been adulterated by simply taking its specific gravity and determining total solids in a small portion of it by drying.

In order to maintain a fair quality in the milk which is offered on the markets, and insure the public against frauds, many States have established by law certain standards which fix the minimum amount of fat, and of solids not fat, which commercial milk shall contain. In such States it is illegal to sell milk as pure which falls below the standard. In the State of New York, for instance, it is no defense to the seller of milk to prove that he sells whole milk from a herd of cows if such milk fall below the standard. In other words, not only is the seller of milk compelled to offer pure milk on the market, but he is also compelled to offer pure milk which reaches the legal standard. The legal standard in New York, I believe, is 13 per cent. of total solids and three and a half per cent. of fat. In the State of Wisconsin the legal standard for the amount of fat in a milk is three per cent., and all milk which shows a less percentage of fat than that would be condemned as adulterated, whether furnished directly by the cows or not. The general average of fat in milk from all breeds of cows, all kinds of feeding, and at all seasons of the year is 3.6 per cent. It is a rare thing for the mixed milk from a large herd to show less than three per cent. of fat. It is quite possible that milk from individual cows may vary within very wide limits, showing sometimes even less than two per cent., and in many instances over five per cent.; but this is not true of mixed milks.



The legal standard for solids not fat in England is nine per cent. When milk contains less than nine per cent. of solids not fat, that is of milk, sugar, casein, etc., there is cause for suspicion, and whenever the percentage of solids not fat falls as low as 8.5 per cent., it is presumptive evidence that the milk has been watered. Inasmuch as the fat can be determined very easily and accurately by the Babcock method, it is possible to calculate with great exactness the percentage of solids not fat by using the percentage of fat, together with the specific gravity accurately determined by means of a lactometer. There are several kinds of lactometers in use at the present time, all of which have the same general form. The one most generally in use is graduated on the stem from 0° to 120°. The zero point is the mark to which the instrument sinks in pure water at 60° F. The 100° is the mark to which it sinks in a liquid having a specific gravity of 1.029 which is about the minimum specific gravity of pure milk. The intermediate readings are intended to show the per cent. of milk, having the normal specific gravity of 1.029, the sample examined contains. The Quevenne lactometer is to be preferred to the one just described. The scale of this lactometer expresses in thousandths the difference between the specific gravity of the liquid tested and water; the specific gravity of water being taken as unity. In other words, the reading of this lactometer is equal to the specific gravity of the milk in which it is placed, less one multiplied by 1,000. The following will serve as an illustration: A milk having a specific gravity of 1.0325 would give, with the Quevenne lactometer, a reading of 32.5. It is therefore easy to convert the reading of degrees as indicated by the lactometer into specific gravity, and specific gravity into lactometer degrees. The scale of the ordinary lactometer may be converted into the Quevenne scale by multiplying by .29. The lactometer is by far the most convenient method of testing milk which can be used, although its indications taken alone would often lead into error. But for the use of the farmer for a simple test, nothing is to be preferred. The instrument is not expensive, and can be furnished by all dealers in dairy supplies.

#### An Immense Tree.

California is to be honored by having a section of one of her famous big trees made a prominent feature in the Government Building at the World's Columbian Exposition at Chicago. The project, the accomplishment of which is fully assured, is a unique one. The section of the tree will be 23 feet in diameter and 30 feet long. This will be divided into three parts, and these will be placed in their natural position, one above the other, and so arranged as to form something like a two-story house. The contract for the tree was made by H. A. Taylor, of the Department of Interior, with the King's River Lumber Company in the Spring of this year, and the company is now at work getting it out in their forest of *sequoia gigantea* in the Converse basin on Kings River in Fresno County.

The contract called for a tree 20 feet six inches in diameter, but the tree actually found will be three feet greater in diameter. There are, of course, larger trees in the forest, but the requirement was that this section should be perfect in all respects, cylindrical, straight, and without a burn in the bark, and this was the largest found to fill all these conditions. The tree selected is one known as the "General Noble." It measures 33 feet in diameter near the ground, but as the object was to have the section of the same diameter at both ends as nearly as possible, a piece was taken out of the tree at some distance from the ground. To do this and to preserve the section from harm by falling, as well as to meet other requirements, has proved to be a work of considerable magnitude. The idea is not to send a solid section, but, rather, the rim of the tree hollowed out and cut into segments of suitable size, and all to be numbered so that they can be erected at Chicago, so as to look from the exterior like a solid section of a sequoia 30 feet in height. The three parts into which the section is being cut consist of two parts of 14 feet each, to be hollowed out, and one two feet thick, which will serve as a floor between the two stories, as it were.

The work of cutting, lowering, and boxing the segments is being pushed forward as rapidly as possible, and it is expected that the tree will be shipped by the end of October. To get the tree to a point where wagons can reach it required the building of a road two miles long. The entire exhibit, including the work, will cost the Government several thousand dollars. The tree when erected at Chicago will be surrounded by a glass dome, and will stand directly under the great dome of the Government Building.

#### The Bull Turned the Tables.

For a little pastime, the young bloods of Chihuahua, Mex., concluded to have an amateur bull fight recently. They got along very nicely until the third bull was turned in, when a scene occurred not on the program. This bull, not pleased with the looks of affairs in the ring, and perceiving the spectators apparently enjoying themselves, made a spring and got over the 10-foot barricade among the people. Faces of the bravest paled, and consternation was depicted in countenances which shortly before were radiant with glee. The judges' stand, which was occupied by young ladies who were to pass on the merits of their sweethearts in the ring, seemed none too good for the frightened bull, and hither he wended his way. Some of the lady judges fainted, and not finding any fight there, the bull broke over the gate to where the soldiers were located and ran the gantlet of their swords and bayonets for some time, but at last was forced to succumb, and gained the fame of being the first bull killed in the amphitheater. Quite a number of Chihuahua's leading ladies and gentleman were severely hurt in the stampede.

#### WINDMILLS AND MOTORS.

##### Some Practical Experiments Which Prove them of Incalculable Benefit to the Farmers.

The average farmer does not appreciate the value of the wind. It is well to ask what use cannot be made of the strong currents of air. We hear so much of the waste of power at the Niagara Falls, but this is nothing as compared with the power which can be utilized in wind. Niagara will only benefit a very small section of the country, but if the advantages offered by the wind were taken up the whole country would be benefited. In England the wind is put to more use than it is in this country.

The following experiments, made by Prof. J. Blyth, of England, in charging accumulators with wind power, is not without considerable interest. We quote his statement from a contemporary:

No sooner was the accumulator invented than windmills for electric storage began to be thought of. At the York meeting of the British Association, Sir William Thomson suggested the construction of cheap windmills to run dynamos for charging accumulators, but, so far as I know, no practical trial was made till the Summer of 1887, when I erected my first electric windmill in the village of Marykirk, Kincardineshire. At that time I procured a set of 13 accumulators and constructed a windmill of the old English type, having four arms and canvass sails. The length of the arms was about 14 feet and the sails were eight feet by three feet. The mill was provided with beveled gearing at the top, a vertical shaft, and beveled gearing below, so arranged that the driving wheel moved always in the same vertical plane, no matter in what direction the wind shaft pointed. The mill was turned into the wind by hand, having no tail or other gearing for keeping automatically head to wind. The dynamo was driven by a belt from the driving wheel, and with this I was able on two or three windy days to store my cells.

Although the experiment was not on a very large scale, it was sufficient to show me that accumulators could quite well be charged, when the electrical connections were properly made, by a dynamo driven at the irregular speed characteristic of a windmill. Sails, I found, were not a great success, especially since I had no way of reefing them. To prevent them being torn to pieces the mill had to be stopped when the wind was high; that is, just at the time when it should have been going at its best.

I remedied this partially. I altered the wind wheel from the English to the American type, having a number of arms and blades of sheet-iron. I also introduced the further improvement of doing away with the driving wheel being always made to go in the same plane. This is absolutely necessary if the windmill is to drive a sawmill, a corn mill, or anything of that sort, but for electrical purposes the dynamo can quite easily be attached to the wind-shaft platform so as to turn with the mill as the wind changes. In this way all gearing is avoided, as the dynamo can be driven with ropes from a large wheel keyed directly onto the wind shaft. This I found to answer very well so long as the wind had a moderate speed, but, like all other windmills, I soon found that it had either to be made self-reefing or stopped altogether when a breeze came. This is obviously very unsatisfactory, as the best of the wind for storage purposes is lost, and hence this problem presented itself, viz., how to construct a windmill that would satisfy the following requisites:

1. It must be always ready to go.
2. It must go without attendance for lengthened periods.
3. It must go through the wildest gale, and be able to take full advantage of it.

A possible solution of the problem is presented in the Robinson anemometer, which consists of four hemispherical cups attached to four arms, and moving in a horizontal plane about a vertical axis. From the theory of this instrument, which is, however, only approximate, it appears that whatever might be the speed of the wind, the speed of the cups attained a certain terminal value, such that the couple due to the wind pressure was exactly equal to that produced by the resistance to the motion through the air, and the friction on the bearings.

Last Summer I erected a machine of this kind, which has been considerably improved within the past three months. The cups are replaced by semi-cylindrical boxes attached to four strong arms, each about 26 feet long. The opening of each box is 10 feet by six feet, and the vertical shaft is a long rod of iron five inches in diameter. At the lower end it carries a massive pit wheel, which actuates a train of gearing and drives a flywheel six feet in diameter with the requisite speed for driving a dynamo connected with it by a belt in the ordinary way. This machine worked most satisfactorily, and with a fair wind speed gave about two electrical horse power. I also tested it in a strong gale, by allowing it to run with no load, and the result was perfectly satisfactory, as a safe terminal speed was attained, and all racing avoided. Hence I think that electrical windmills, at least for small installations, are likely to assume this form, as there is no limit to the size and strength with which they may be constructed, and, if necessary, several could be placed in any well-exposed position, each having its own dynamo and set of accumulators. During the past few months I have increased the power of the machine by adding an auxiliary box to each arm with a gap between it and the previous one. This I find to be better than merely increasing the size of the previous box. As a whole is a case of vortex motion, the theory is very difficult. Information can only be got from models and apply the principle of dynamical similarity.

The hardest labor for the tramp is the effort he makes in asking for work.



## THE CRANBERRY.

### How and Where They are Grown, and Something About the Pests that Devour Them.

**T**HE COMMON American cranberry (*Oxycoccus macrocarpus*) is found growing wild in swampy ground in the Eastern, Middle, and Western States. It grows spontaneously in great abundance in Wisconsin, Minnesota, and Michigan. It is cultivated extensively in the New England States, in New Jersey, in Wisconsin, in Minnesota, in Michigan, in California, and on the Eastern slope as far south as Charleston. In the neighborhood of Charleston cranberries of fine flavor have been successfully grown.

The essential condition for cranberry culture is low, marshy ground, containing as much sand naturally or artificially as to prevent the ordinary growth of vegetation in very great abundance. An analysis of a soil from New Jersey, which was especially suitable for cranberry culture, showed that it contained 97 per cent. of inorganic matter, chiefly sand, and only three per cent. of humus and peaty matter. Marshes which contain larger quantities of peaty matter can be successfully prepared for cranberry culture by covering them deeply with sand. Many hundred acres of bog land containing large quantities of peaty substances have thus been prepared for culture.

The limits of longitude in which cranberry culture can be carried on are very wide. In the New England States you can go as far north as is possible to escape danger from frosts, while, as has already been stated, excellent cranberries have been grown as far south as Charleston. In fact, there is but little doubt of the fact that there are many hundreds of acres of marshy land in the Southern States which could be prepared for successful cranberry culture by simply covering them with sand so as to prevent the growth of weeds and plants which would smother the growing cranberry.

Cranberries may be raised from seeds, root suckers, creeping roots, and trailing, rooting stalks, and plants which are growing with several rooted stalks may be divided in the root and top into separate plants. When seed is used it should be sown in the Autumn as soon as the cranberries are ripe and gathered. The seed can be planted in a shady border and afterward transplanted to the marshes, or they can be sown in the place where the plants are to grow, and in this case transplanting is not necessary. Cranberry plants do very well also when transplanted in the Spring, but the Autumn transplanting and sowing are to be recommended.

In regard to the flooding of the swamps different practices are pursued. In some parts of the country it is customary to overflow the cranberry fields in the Spring, especially when there is danger of frost. The water at no time should be over one or two inches deep on the cranberry field, nor should it be left on later than the last of May. If the water is kept on the vines until the weather becomes warm it will probably kill them. The best way is to let the water on when the weather is cool and have it removed before warm weather comes on. In some cases it is recommended to preserve the cranberries in the Autumn from being frozen by flooding the fields at this season. Where this can be done to advantage, and cheaply, it will probably result sometimes in saving the crop where an early September frost is likely to cut it off. The only cultivation which the cranberries require is to keep the weeds and other plants from growing, and this is a simple process.

Cranberries may be gathered by hand, but in many cases rakes are employed to tear them off the vines. These rakes apparently lacerate the vines and do them injury, but in point of fact, the vines are benefited by being raked in this way. Before shipping, the cranberries should be run over an inclined plane only slightly inclined. The rotten and bruised fruit will not run off this plane, but stick on the platform, from which it can be removed and thrown away. The fruit which is fit for market is put into tight barrels, and these can be headed up and filled with water, especially if they are to be shipped abroad. Cranberries can be preserved for a long while, even for years, merely by drying them a little in the sun and then putting them up closely in clean bottles.

The yield of cranberries varies greatly in the country from year to year. The crop which was reported for the last census yielded, approximately, 400,000 bushels. Of this crop New Jersey furnished 135,000 bushels; the New England States about 205,000 bushels, and the rest of the country about 60,000 bushels. The price per bushel for good cranberries, for a crop of this size, is about \$5.50. The preceding crop, that is the crop of 1888, was a much larger one, aggregating 575,000 bushels. Of this number New Jersey furnished 225,000 bushels; New England, 250,000 bushels, and the other States, 100,000 bushels. The price per bushel, of course, varies according to the size of the crop and the demand, but for an ordinary crop about \$5 a bushel may be taken as an average.

Cranberry vines, as well as other small fruits, are exposed to injury from insect pests. These have been very carefully investigated with the intention of determining their habits and also of discovering the best method of destroying them. Some of the pests which injure the cranberry vine are the vine worm, or fire worm, *Rhopobota vacciniana*; second, the glistening cranberry moth, *Teras oxycoccana*; third, the berry worm, or fruit worm, *Acrobasis vaccinii*; fourth,

the cranberry tip worm, *Cecidomyia* species; fifth, the red striped cranberry worm, *Tortricid* species; sixth, the cranberry span worm, *Cymatophora pampinaria*.

Of the first pest there are two broods each year. The first emerges early in Spring, soon after the water is drawn off, from eggs laid during the preceding Fall, the flooding with water during the Winter not harming them in the least. The larvæ become full grown toward the end of May, the moths appearing from the beginning to the end of June. The eggs are laid soon after the moths are hatched, and the second crop of larvæ are hatched early in July, just about the time the young berries begin to set. They become full grown toward the end of July, and early in August the moths begin to appear. These lay the eggs, which then remain under water during the Winter and do not hatch until the next Spring.

The second pests, mentioned above, are hatched from eggs which are deposited in April or early May by the slate-gray moths which have hibernated in all accessible shelter. The larvæ hatch about the middle of May, or earlier if the bog be uncovered early, and become full grown by the end of May or early in June. The moths which appear early in June are uniformly of an orange color. A few days later eggs are deposited, and the second brood of larvæ appears toward the end of June or early in July. They come to maturity late in July or early in August. The third brood is also sometimes produced before the Winter sets in.

The third variety of insect pest is a green caterpillar in the larva state, with a reddish shade on the back and a yellow head and neck. When full grown it is rather more than a half an inch long, and it spends its entire life within the berry, eating out the insides of from two to four in the course of its existence. The moth producing these worms expands about three-fourths of an inch when spread.

The fourth pest is a small footless grub of a dull red color. It lives in the fruit bud for the following year, and if plentiful of course destroys the bud and prevents the vines from setting.

The fifth pest named is a green caterpillar rather exceeding a half an inch in length, and with six narrow red stripes, broken near the head. It does not seem to be particularly injurious.

The sixth pest in the larva state is a slender, livid, somewhat reddish-gray caterpillar, rather more than an inch long. This insect does considerable damage on the Cape Cod cranberry marshes, but has never invaded those of New Jersey.

There are also many fungus diseases of the cranberry which the grower has to contend with. One fungus which has done considerable damage is the *Synchytrium vaccinii*, which produces minute galls upon all parts of the cranberry plant, and renders it incapable of producing a crop. The contagion spreads by means of the water with which the bogs are overflowed, and thus extends rapidly over a large area.

So important is the necessity of preventing the spread of fungus diseases that the New Jersey Legislature has passed a law which compels owners of diseased cranberry marshes to destroy them in order to prevent the spread of the contagion. Two methods of treatment are suggested for this. One is to withhold the water from the bog during the Winter and the Spring, and the second, at the proper season to burn over the whole area attacked and then let the roots grow up again or replant the field.

There is also another fungus disease, which is known as the cranberry scald. It has been attempted to destroy this fungus with flowers of sulphur, sulphate of copper, and carbonate of lime, but the results of the application of these remedies were not at all pronounced, and do not warrant the conviction that any of the above-named substances will prove a cure for the scald. It is certain, however, that the vines are not injured by applying the remedies above mentioned. Some of the experiments tend to show that if soil be taken from high, dry ground and spread over a cranberry marsh it may put a stop to the scald. In many cases, where cranberry fields have not produced a good crop for years on account of the scald, it was found that by covering the marsh with a subsoil, from high ground, to one inch in depth the scald was removed and the vines were restored to a good bearing condition. The cranberry marshes of New Jersey suffer most from the scald, while those on Cape Cod suffer very little. It is probable that the conditions for spreading this fungus are found in the soil and water of the bogs themselves, and do not exist in the air.

Cranberry culture is very profitable when carried on under proper conditions. To summarize these conditions, we may say that first of all there must be a low, marshy ground in which sand predominates. If the marsh is one in which peaty substances predominate, it can be rendered suitable for cranberry growing by covering it with sand. The marshes should be of such a nature that they can be flooded with water to the depth of one or two inches. The crop, both in Spring and Autumn, may be protected from severe frosts by flooding.

The cultivation consists in keeping the marshes free from weeds and other plants, giving the cranberry vines the full run of the land. The profits of the culture are considerable when it is carried on under favorable conditions, and cranberries are capable of being shipped long distances to market without injury. It is believed that there is scarcely any marshy ground in the United States, which, with the care mentioned above, will not be proper for cranberry culture.

A French performer, after testing California roses, finds that they contain 20 per cent. more of volatile oil than the French roses. It is said that 50 cents per pound is paid for some flowers, and that the French factories in the town of Grasse alone employ 5,000 persons. Here is a chance for California to take a new industry to herself.



## SUGAR-BEET CULTURE.

### The Weather Conditions Not the Most Favorable, and the Caterpillar Very Destructive.

EDITOR AMERICAN FARMER: Since our previous communication upon the standing and prospects of the beet crop, the weather conditions have not been of the most favorable character. For such parts of the crop as were not affected by the insect attack, of which we spoke in a previous letter, the temperature has not been unsuitable; but for the considerable breadth which was eaten down to the ground by the caterpillars until scarcely a green leaf was remaining, warm, moist weather was imperatively required in order to force the growth of the root, which had been practically held up for one month to a greater all-round size and weight. It is of small moment how rich the roots may be in sugar, if the beets do not come to a given moderate development the yield of sugar per acre cannot be satisfactory. Now, with the damaged portion of the crop in Nebraska that is the weak place. We inspected some 800 acres in the district of Grand Island a week ago. The great body of the crop looked well, although the growth was coming to a standstill for the need of more rain. The weight of the crop per acre is likely to be considerably below the estimates which were made in July, when the development was unusually advanced. About 200 acres which had been severely attacked and ravaged by the beet caterpillar are not like realizing more than two-thirds of the crop which they were capable of making. The action of the caterpillar was much more destructive than was estimated at the time of the attack. Not only was the foliage in some places wholly consumed, the insect appeared to cause a poisoning effect upon the beet, which hindered a rapid recovery from the ravage wrought. Nevertheless, the crop of 1892 is unquestionably the best which has been grown in the State of Nebraska, excluding those areas which were devastated by the insect.

The factory season in Nebraska is just about opening. The Oxnard Co. at Grand Island commenced last Monday (Sept. 12) getting up the beets and hauling to the factory, and the business of extracting the sugar is beginning. The actual content of sugar in the beet, and the state of purity of the juices, are still capable of improvement; but the standard is high enough to commence work, and the richness of the beet in saccharine matter will increase day by day if the weather is favorable.

At the moment that we were in conversation with certain of the Oxnard Co. experts a telegram came in from the great factory of that company located at Chino, Cal., saying that "the battery had during the previous 24 hours handled 460 tons of beets." That was probably the product of 30 to 40 acres, which was undoubtedly a great day's work.

The reports from Europe at the beginning of the current month were very unsatisfactory. Evidently the condition of the crop in all the beet-growing countries is critical, and the results are uncertain. From France we learn that extreme heat and drouth have prevailed, and that of all the crops which have suffered from those untoward climatic conditions the beet crop has suffered the most. "Wherever sugar beets are cultivated complaints are heard, and reasonable rains are awaited with extreme impatience."

At a meeting of sugar growers held in Paris, the general testimonies were unfavorable. It was said that the beets were losing their foliage prematurely, and that growth was almost suspended. Although the beet is fairly rich in sugar, the quantity of juice in the beet is small, and the beets will work very badly as a consequence. The results given by the Chapelle Experimental Station indicate that the weight of the beet is low.

From Germany the accounts are equally unsatisfactory. The season has been very dry and extremely hot. The crop is deficient in weight, and although the sugar content of the beet is good, it is claimed that the factories will not be able to extract a normal per cent. on account of the small amount of juice in the roots. If a heavy rain were to fall the beets would take up immediately 10 per cent. of their weight of water. The same climatic conditions obtain throughout Europe in a greater or less degree.

It is said that the climatic conditions of this year are analogous to those of the year 1876, and in that year there was an enormous deficit in the beet crop throughout Europe. Whilst the beet crop of this country promises to be the best that has been grown, almost the opposite result is being now anticipated in Europe.

When we speak of the condition of the beet crop of the United States we are considering the subject in respect of the measure of success which is attending the effort that is being made to introduce and establish the sugar beet industry in this country. The prospects of the crop in Europe have a much more immediate concern, and of a very practical nature. The greater part of the World's sugar is made from the beet, and a large falling off from that source means a great deficit in the total supply, and a consequent rise in prices. Already the sugar market is in an uncertain and unsettled condition, owing to the prospects of the crop and a disturbance of commercial conditions, and prices have advanced beyond the figures of the past two years. The prospect of cheap sugar for 1893 is not assuring.

The latest information in our hands from George Dureau, Paris, states that

some rain has fallen, but not enough to materially alter the statements which we have already made. The crop in France has at present rather the better fortune, having recovered a little lost ground.

From Germany it is stated that the great heat at the beginning of this month had become still greater, and that it has proved an actual calamity to man, beast, and vegetation. "If beet growers do not yet abandon the hope of a tolerable result they must found it on the expectation of abundant rains; but if these fail the situation is critical, and if they come later on their effect would be rather injurious to the crop, as they would cause a new vegetation (second growth) of the beet, which is deleterious to the quality acquired, which at present is fairly satisfactory."

Austria has suffered, and is suffering, equally with Germany from the great heat and dryness.

In Belgium the situation becomes worse. Not only have the heat and drouth retarded the advancement of the crop, but the fields are being ravaged by insects with disastrous results. Holland and Russia report more favorably, the former having held a favored place throughout the reports of the season.

The present actual condition of the crop, with the condition at the same date in the three previous years, is seen in the following table. The French data are taken from the bulletin of the Chapelle Sugar Beet Experiment Station, and those from Germany are from the Statistical Bureau of Herr Licht, Magdeburg.

	1890.	1890.	1891.	1892.
France, weight of beets, grams.....	422	171	193	296
France, sugar, per cent.....	14.8	14.02	13.16	14.08
Germany, weight of beets, grams.....	420	341	295	256
Germany, sugar, per cent.....	13.20	11.60	11.93	13.25
Nebraska, weight of beets, grams.....	.....	.....	.....	280
Nebraska, sugar, per cent.....	.....	.....	.....	13.0

With respect to the data from the State of Nebraska we would add that the data is only approximately correct, as the methods of sampling and the time which is allowed to elapse between the moment of taking up the sample and the time of analysing the same do not allow of exact estimations. However, we give the data without hesitation as being practically accurate.

The sugar content of the beets at Grand Island, Neb., has gone down during the past week in certain fields. Those beets which were badly eaten with the insects have put forth new foliage, which is becoming as green and dense as it was in July, and all this new growth is preventing the formation of sugar, and is, in fact, actually using up the sugar. When the new growth ceases the sugar content will come up again.

The conditions of the season in Europe, as likewise in this country, are, in some respects, extremely abnormal. What the outcome of the year will be cannot yet be estimated with any degree of certainty. The prospect, however, is causing much concern in Europe, and the latest data do not enable us to alter our views concerning the price of sugar for 1893, so far as it depends upon the beet crop. —W. MAXWELL.

### What the West Pays for Its Schools.

The interest of the people of the West in education is indicated in no better way than by the test of the dollar. The financial measurement of interest may be applied with the greatest accuracy and significance to the salaries paid for instruction, and also to the cost of the education of each pupil. The average salary a month paid each man teaching in the public schools of the United States is \$42.43. The lowest below this average is the salary paid in those States known as the South Atlantic States, beginning with Delaware and ending with Florida, which is \$28.11. The next lowest is represented in the States of the South Central Division, Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, and Arkansas, which is \$40.59. Above the average of \$42.43 is found the salary paid in the North Central States, \$43.09, and also the salary paid in the North Atlantic States, \$48.20. The furthest above it is the salary paid in the extreme Western States, which is \$64.81. The highest average salary paid a month in any State to a man teaching in the public schools is to be credited to Massachusetts, \$108.88; but the next highest salary paid is that found in Colorado, \$95.21. A study of the figures of salaries paid to women who are teachers in the public schools exhibits a similar result. The average salary each month paid in the United States is \$34.27. The States of the South Atlantic fall below this standard with an average of \$27.07; of the South Central Division with an average of \$33.45; of the North Atlantic Division with an average of \$32.46; and also of the North Central Division with an average of \$34.07. But the States of the extreme West rise above this standard, showing \$56.62. It is thus made evident that women teaching in the schools of all the Western States, beginning with Ohio, receive an income considerably larger than that which their sisters receive who teach in the States of New England, in New York, and Pennsylvania. Colorado pays its teachers more than Massachusetts; Ohio gives its teachers twice as much as Maine; and the teachers of Illinois receive more than twice what the teachers of Vermont receive. —Harper's Magazine.

The forests in Maine are well taken care of, and it is said that they contain more timber now than 10 years ago. Maine has a heavy draw on her forests for timber for ships, and good care must have been taken of them if the above is true. One reason why the forests are preserved is because no small trees are cut.



## FARMER CLUBS.

### Interesting Meetings of the Gunpowder and Deer Creek Clubs.

**T**HE September meeting was held at the place of Mr. Nelson R. Miles, who, besides growing the usual staple crops, gives prominence in his operations to fruit growing. His large apple orchard, which last season produced 1,000 bushels, this year gave practically no crop. The tour of inspection showed that the wheat and corn, as well as the hay crops, had given satisfactory yields, and everything looked prosperous and flourishing, the homestead being made very attractive by the handsome ornamental trees and shrubbery by which it is surrounded.

The Secretary read, as usual, the minutes of the last meeting of the Club, and also those of the meeting last held on the same farm.

In the "half hour for questions," Samuel M. Price asked if an unusually large amount of rag weed was generally observed. He thought when the Winters are mild there is more of it than at other times.

Some of the members had noticed the unusually abundant growth of the weed this year, especially in permanent pastures.

Mr. Price said he had several acres where grain had been grown (cornstalk ground) that had grown up in weeds which he intended to put in corn next year, and he will cut the weeds before they mature seed and let them lay on the ground.

J. B. Gusor said where the aftermath had been cut he saw very little difference whether the filth was removed or not from grass sets.

W. Price said where the aftermath was removed the grass was better.

Abram C. Scott told of an experience in cutting over a field where the stubble of the aftermath was left higher on one part of the field than another, and the growth of the grass was better with the higher stubble.

Lewis M. Bacon approved of removing all filth from grass.

J. B. Gusor asked if it was better to sow timothy seed in front than behind the drill. Several members answered yes.

Frank G. Scott asked if sheep can be injured by giving them too much salt. His had had access to salt in the field, and one sickened and died. He was answered that a little each day is no disadvantage; stock generally should have salt about twice a week.

A member asked whether corn is the right feed for horses, oats and bran having been recommended as preferable, and reply was made that when corn is not given to hard-working horses they show it in loss of flesh and strength.

In reply to a question it was advised that apples for Winter should not be picked this early.

W. W. Matthews has a fair crop of Fallowalder apples, but they are falling off. Geo. Shelley had a fair crop of York Imperials, but it was reported that apples generally this year are inferior.

How best prepare for wheat corn ground which has become weedy? Those who had followed the plan last year recommended to mow over the ground, remove all stalks and weeds, shovel-plow the ground, and harrow it before seeding.

On the probability of wheat selling better in the early future, there did not seem to be much favorable expectation of so desirable a change. The opinions of some commission men were quoted to the effect that the prospects for an advance are not favorable. It was agreed that present prices are very discouraging. A delegate present from the Junior Gunpowder Club reported that his wheat brought 84 cents.

One member having reported that although he had previously had excellent results from top-dressing grain with manure in the Winter, yet on the same ground last Winter on doing so the yield of grain was very light, but the set of grass very good. It was suggested that this could only be attributed to difference in seasons.

Which is the greatest loss to the farmer, the grain or the grass? S. M. Price said we had better lose in grain than in the grass set.

This meeting being one for reading selections, Wm. W. Matthews read an article, "Keep Your Farm and Your Farm Will Keep You," urging perseverance, method, study; not frequent changes, but the same industry and persistence which, with intelligence, will bring success in other callings.

At its next meeting the Club will take up the annual manure question.

The Deer Creek Farmers' Club, of Harford County, Md., which met at Jas. F. Kenly's farm in September, discussed the question of profit in growing wheat in this part of the country.

Mr. Kenly said the main object of our farmers in sowing wheat is to get the land back in grass and to have straw for bedding, and the crop is not profitable even at double present prices. Rye would probably give better returns and grass could be seeded as well with it as with wheat. The straw of rye brings as much as timothy hay, but to get the best price it must be thrashed differently from wheat, so that the straw will not be broken. He had tried sowing clover in corn, but so many weeds came that the land had soon to be plowed again.

S. M. Lee contended that growing wheat is a necessity to get straw as an absorbent in stables and barnyards and as a protection for the young grass. Rye cannot take its place, because the yield is not so large as wheat. According to his

experience, the present low price of wheat is not likely to continue, but even at present figures the purchasing power of a bushel of wheat is very great.

Wm. D. Lee thought farmers cannot get along without raising wheat, but did not believe the present price could continue. Last year he got \$1.03; this year, 70 cents.

B. H. Barnes and R. C. Richardson agreed that it was necessary to raise some wheat, but as little as possible should be grown, and care taken with it. This year the inferior quality had much to do with the low price.

Edw. P. Moores said it is as necessary to raise wheat as it is to raise corn, hay, or any other crop, and it is a mistake to charge all the labor and fertilizer to the wheat crop alone. The hay crop and pasturage following should be charged with a portion of the first expense. Grass seed might be sown with oats, but with the same fertilizer and even a large crop of oats the difference with oats at 30 cents, and wheat at 70, would be in favor of the wheat. Besides, wheat is a money crop, always useful and available to the farmer.

R. Harris Archer told how he once prepared a field, fertilized as if for wheat, and about the 1st of September sowed on it a peck to the acre of timothy seed. The crop of timothy was ready to cut the following July or August, and was a good one, and the land is still in grass. If one ton per acre can be secured, and this is a moderate estimate, it would be worth more than 15 bushels of wheat at current prices. The year he omitted sowing wheat he cut cornstalks for bedding. Crimson clover could be sown in corn and cut the following May for hay, or to use as an absorbent.

John Moores said no farmer can get along without wheat, unless he is a canner. Prepare the ground well and put the wheat in well, and you will get a good crop. He had never failed to get a timothy crop when it was seeded with wheat. The value of wheat straw ought not to be omitted when calculating the value of an acre of wheat—it is worth from \$5 to \$7 an acre.

John B. Wyong regarded a certain quantity of wheat necessary as the only way to get good sets of grass, and if it will bring 90 cents to \$1, it will pay, the latter being the average for 10 years.

R. F. Hanna argued that a little wheat should be raised for the sake of the flour, for the straw, and to get the ground in grass. The wheat crop should be credited with the grass that follows, and the straw is worth \$5 an acre to spread on land as a fertilizer.

Wm. B. Hopkins considered wheat the farmers' money crop, and indispensable, and did not think it costs as much as some members estimate, but that even at 70 cents a bushel it gave some profit.

Jas. W. Hanna said farmers could not live without eating, and wheat must be grown. Nor can we get along without straw in our stables, as leaves, about the only substitute, are hard to get.

Thos. Lochary didn't believe growing wheat could be dispensed with, but it is a mistake to raise two crops in succession on the same ground. The fertilizer for both, if used on one, would insure a good set of grass.

Geo. K. Stephenson, whilst satisfied there was no direct money profit in raising wheat, regarded it as a depository for the benefit of succeeding crops. A bushel of wheat purchases now as much as it did some years ago, but the expense of getting that bushel is as great as it was then. It cannot be grown at a profit at 75 cents, and a crop that occupies so much of a farmer's capital had better be abandoned, or at least curtailed in acreage. Rather than raise wheat for straw for absorbents, build stables in such a way as to save the fertilizing materials direct. Sowing with wheat is the cheapest way to get a field in grass, but better grass is got with oats than with anything else, and if the ground was prepared as for wheat, and the grass seed sown, the grass would last longer than when sown with wheat. Crimson clover if it succeeds may obviate the necessity of raising wheat.

B. F. Hanway advocated farmers attempting to grow no more wheat than they can properly put in, so as to retain their lands in grass as long as possible. The straw is indispensable, especially for dairy cows, which must be well bedded and kept clean.

D. C. W. Smith said farmers should be governed by circumstances in reducing the wheat acreage to a minimum, a small area well prepared always being more profitable than a larger one with a smaller yield per acre. For absorbents and bedding fine cut fodder and sawdust could be used.

#### A Japanese Wonder.

The world renowned man-faced crab of Japan is said to be the most singular looking creature imaginable. Its body is not more than an inch long, but its head has eyes, nose, and mouth clearly defined, and is the perfect counterpart of a Chinese cooly.

In a recent issue we had a miscellaneous article on irrigation. Since its publication we have learned something new in regard to irrigation. A good many of the farmers, instead of constructing waterways, bring the artesian well into use, and the number of these is quite large. There are said to be 13,972 artesian wells west of the 97th meridian, which irrigate more than 100,000 acres of land; 200,000,000 gallons of water often flow from a single well.

Bad roads are indeed a loss to the farmer, and recently the question of improving their condition has been agitated all over the whole country. It is claimed by those engaged in agitating the road question in Tennessee that bad roads cause the farmers of that State a direct loss of \$7,000,000 annually.



## THE SANDWICH ISLANDS.

### Their Climate, Soil, and Adaptability to the Culture of the Sugar Cane.

BY J. N. INGRAM.

**T**HE Sandwich Islands are situated just below the tropic line of Cancer, between 19° and 22° north latitude. They are 2,100 miles west of California, and eight days' sail by the ocean steamers from San Francisco. They contain a population of 90,000, of which 35,000 are natives; 10,000, Portuguese; 25,000, Chinese; 3,000, Americans; 2,000, English, and the remaining population are of other nationalities.

The group consists of 12 islands. Of these Maui, Oahu, Kauai, Molokai, and Hawaii are sugar-producing islands. The group has an area of 6,300 square miles and a domain of 4,000,000 acres. One hundred and fifty thousand acres are arable lands.

All the large islands are mountainous. On Maui the mountains rise to a height of 10,000 feet, and on Hawaii the crater peaks soar to a height of 14,000 feet. The body of the cultivated lands are found on the lower slopes of the mountains, extending from the seacoast up to the frost line on the ranges. Little valleys between the peaks and undulating flat lands along the ocean shores also have arable grounds.

The islands are all of volcanic formation; the soil is composed of disintegrated lava and ashes blown out of the craters, covered with a rich loam from the vegetable decomposition of the ages. The growth of the tropic vegetation has been luxuriant, and the lands are coated with soil of great depth and rare fertility.

The soil is loose, as well as rich, and is easily tilled. It produces bountifully such crops as are suited to the climate. The best-adapted product to the islands, and the most remunerative crop, was found to be sugar cane. The cultivation of this plant and the manufacture of sugar was begun soon after the organization of Government on the islands and their occupation by foreign inhabitants. The fertile, loamy land and the mild climate were found well suited to the maturity of cane, which grew luxuriantly and produced large returns of sugar.

The tropical climate enables two crops to grow in a year. The inadequacy of the natives to supply the labor demand in the fields and the scarcity of labor caused the industry to develop slowly.

In 1875 King Kalakaua, who was elected by the Hawaiian Parliament to the throne, visited the United States and induced the American Government to form a reciprocity treaty with the islands and admit Hawaiian sugar free of duty. The Hawaiian Government then made appropriations for importing labor from abroad, and labor schooners were employed and sent on cruises among the South Sea Islands to engage and ship the natives of the Polynesian Archipelagoes to the Hawaiian Kingdom to work on the sugar farms. Supplies were advanced, contracts made, terms arranged for a series of years' service, and the Polynesians of both sexes transported to the Sandwich ports. Chinese and Portuguese were also contracted with—as laborers—and imported to the islands. The physical force was collected and the financial soon followed, and the mechanical was speedily added.

As the productive soil, mild temperature, and exemption from duty made the production of sugar profitable, a number of American capitalists and agriculturists from other countries collected on the islands, leased the Government lands, brought them under cultivation, imported machinery, erected mills, and engaged in the cultivation of cane and the manufacture of sugar.

The industry at once received a great impetus, the cultivation was greatly increased, and the manufacture of sugar enlarged. The business became an extensive and remunerative one. New and large plantations were opened and the labor vessels kept busy importing hands. The old methods of cultivation were improved, new machinery imported, modern mills and the latest system of manufacture introduced. The foundries at Honolulu were enlarged and run to the utmost limit to supply the plantation demands.

The wages paid the laborers are from \$7 to \$9 per month, which include rations, house room, and medical attention. Many of the immigrant hands are inexperienced in the culture of cane and the manufacture of sugar. Some months' service is necessary for them to become expert laborers, either in the fields or at the mills.

The labor laws of the kingdom are very rigid, and are strictly enforced. All parties are made to keep their contracts. Most of the hands have supplies and money advanced them before they go to work, and if their engagements were not enforced they would leave their employer and subject him to considerable loss.

Complaints are heard by the Government courts in all labor or contract disputes, verdicts given, and grievances adjusted. But if the laborers resist the verdicts of the courts, or refuse to comply with their contracts, or leave their employers before their engagements have expired they are pursued, hunted, and captured by the Government constabulary, placed on trial before the magistrates, and fined for violation of law. They are remanded to prison, or consigned to work on public roads, until their fines have been liquidated, the damages inflicted on their employers discharged, and they announce submission to the decrees of the court, and agree to the fulfillment of their obligations.

This system of labor law was introduced early in the history of the islands by the whale ships which visited the Hawaiian ports and engaged part of their crew among the natives. The system is still perpetuated, and when a laborer makes a plantation contract he is said to have "shipped." If an employer is unjust, and does not keep his agreements, his arrangements with his hands are annulled by the courts, and injustice and alleged difficulties adjudicated.

Some of the cane farms are irrigated by streams flowing down the mountains and issuing from the mouths of valleys. Rains fall almost daily on many of the mountain heights, and numerous streams course down the ranges. The creeks are turned by canals around the farms and directed by ditches over the fields, and the waters distributed among the crops. At Lahinai and at Wailuku, on the island of Maui, the fields on the great plantations are almost entirely watered by irrigation, and this is the finest cane-growing part of the archipelago.

In some regions on some of the islands the rainfall is excessive and almost constant, and irrigation unnecessary. In the wet districts the annual rainfall varies from 1 to 19 inches. The wet regions are found on the east sides of the islands, owing to the height of the mountains and the currents of the winds. The eastern shores of the island of Hawaii is a very wet region, with almost daily morning downpours. The temperature on the islands in the Summer season rises from 75° to 90°. The Winter temperature is from 57° to 67°. The group is fanned almost constantly by south winds, called Kona's, which cool the tropic climate and make the islands pleasant. Sea winds blow at night from the ocean, and the excessive heat of the Summer months on the plains of the Western States does not prevail in Hawaii. The hottest weather on the islands, due to the sea breezes, is not prostrating, nor as high or debilitating as in the interior of the big continents much nearer the poles. In the middle of the day in July and August the sun rays are hot, and for two or three hours after noon little or no work is done in the fields; but the early and later hours of the day are tempered by constant sea winds.

A unique condition of the farms is seen in their position; they are not only open to the breeze of the sea, but their elevation on the mountain sides catch the ocean air currents, and the higher atmosphere make cooler the temperature in the fields. The plantations lay on the slopes of the ranges one above the other like a rising stairway of farms. Although the mid-day sun may be touching the 90's, the force of the winds blowing in from the sea and the rarity of the air on the elevated farms make the climatic effect less enervating than is found in the fields of Louisiana and other regions removed from the reach of ocean currents.

Many of the planters operate with large capital. Some of the farms are worth \$1,000,000 each. The planters build their dwellings on the mountain slopes or on hilltops in the midst of their farms. Most of them have erected handsome residences, with groves of trees and yards of shrubbery, often decorated with gardens of flowers.

The buildings are all wooden structures, painted white, with broad piazzas; and the grounds are always shaded and kept in good order. The tenant quarters are plank-box houses—usually whitewashed—with adjoining garden plots, ranged into rows along the slopes near the mills and convenient to the fields. Some of the quarters on the large plantations resemble little villages, with the planter's mansion rising in the center like a fort, while the mills pouring fourth columns of smoke from their chimneys look like ungainly steamers on the hillsides.

The cane grows redundant, and the heavy blades of the plants covering the fields with luxuriance with their undulating verdure resembles the rolling waves of the ocean. When the winds stir the fields the rustling cane assumes quite a sea-like picture, the long swells of the blades extending from the frost line down the mountain to the ocean beach.

Some of the large plantations—which employ a large force of hands—engage a doctor paid by the year to live on the place and attend to the laborers. But as there are no malarial rivers, stagnant lakes, or Winter storms on the islands diseases are neither numerous nor frequent.

Most of the farms are equipped with telegraphic apparatus, and the planter from his mansion moves and directs his force of hands in the fields and controls the operations of his mills through his overseers by telephonic communications. Telegraph wires connect the island villages, and an inter-island cable taps Honolulu. The planters can thereby issue cable orders to departing steamers and merchants at the Hawaiian capital for supplies. Weekly steam communication give the different islands access to the port of Honolulu. Narrow gage railways connect the larger farms with the island ports, and also the sugar mills with the distant fields. The freight and plantation supplies are transported by rail from the steamer wharves to the ranches. The cane is carried from many fields to the mills, and the sugar taken to the ports by locomotives. A great economy of time, saving of labor, and preservation of teams are made by the service of steam.

The latest improvements in manufacture and the best implements are used. The methods of cultivation vary on different islands. Owing to the lay of the ground, one system of cultivation is not suited to all conditions. The smaller farms on the higher elevations and rough soil are sometimes largely worked by hoes. The better lands of the more thrifty farmers are tilled with cultivators, and by some steam plows are used.

The fresh lands are broken up with turn plows, and the grass and weeds allowed to decompose. After some weeks the ground is again turned and harrowed. The rows are laid off four and five feet apart. The furrows are drawn and the cane placed in the rows. The cane is stripped of its foliage before it is planted. No seeds are planted. Each joint throws out a bud, which grows into a stalk. The first bud sends out other buds, which also become stalks, and a bunch of plants grow from each joint planted. The shorter cane is in more request for planting, as its joints are closer together and produce more buds.



The cane varies in its length of joints. The joints near the ground end are two and three inches long; those approaching the top of the stalk are from nine to 12 inches in length. The longest joints are frequently cut off in planting the cane.

The planters begin to stir the land as soon as the cane comes up. Two furrows are drawn around the rows by little plows, and the weeds and grass removed by hoes. To distribute the water in the fields irrigated, the cane is planted in furrows below the ground level. When the plants grow larger, cultivator plows are used, and the soil kept well broken. When kept mellow and loose, the lands absorb the moisture better from the rains and atmosphere, and give more nourishment to the roots of the plants. The ground is worked until the cane becomes too large to admit the passage of the plows and animals. In the last plowing the land is left level between the rows. In that condition the fields retain the rains best, and the water is not drawn away from the plant roots by deep furrows or ridge banks.

The island soil is brown, red, and black in color. The clay-colored soil is preferred for cane. The plants do not do well in low or wet lands; they grow too much to leaves. They do best on sloping lands, where the drainage is good, the soil kept warm, and the sun rays mellow the cane. The southern exposures on the mountains mature and ripen their crops faster. The cane does not grow to advantage on the sea beach, as the damps from the ocean injure its quality. Neither are sandy lands suited for the plants.

The farms extend up on the mountain slopes as far as the night temperature will permit. Near the frost line the cane becomes stunted and requires longer time to mature and ripen. Below the 1,200 and 1,300 feet levels is the natural elevation for the plant. Above that line the night climate is too cold for cane culture to be profitable.

The planting months depend on the elevation of the land. The higher elevations are planted earlier than those down in the warm lands near the seashore in order to receive more time for the cane to mature. Below the 1,100 and 1,200 feet levels the month of May is selected for planting the crops; and under the 700-foot line the weeks of July are preferred. During the growth of the plant the first blades wither and die near the ground and adhere to the stalks; the dead leaves delay the ripening of the cane, and have to be removed once or twice during the maturity of the plants.

The cane flowers, or tassels, usually in November. When it flowers the plant has attained its growth. After the first crop of cane is removed a second growth will follow, called the "ratoon crop." When the cane is ripe the sooner it is used the better, and the more sugar it will produce.

The sugar lands largely belong to the chiefs and the Hawaiian Government. The body of the natives have sold their lands and spent the money, and many of them are homeless. Seven hundred thousand dollars will cover the native interest in the sugar industry on the group. A similar amount will represent the Chinese interests in plantations.

The planters rent improved lands at from \$3 to \$6 per acre. The improved sugar lands can be bought at \$20 and \$45 per acre. The wild lands sell from \$1 to \$5 per acre. The cost of fitting up a well-equipped plantation with implements and machinery varies from \$75,000 to \$100,000. Many of the larger plantations are worth 10 times the above-mentioned amounts. Over \$40,000,000 are invested in the production of sugar on the islands.

Many of the large farms have blacksmith shops, and smiths engaged by the year to keep the tools and machinery in repair. They also have carpenter sheds, and keep wood workmen under yearly engagements. Temporary masons and smiths, and carpenters receive from \$2 to \$8 per day; engineers, \$100 to \$150 per month; sugar boilers, \$100 to \$125 per month, and field overseers \$50 to \$100 per month. The superintendents receive \$150 to \$200 per month, and the managers of large estates get from \$3,000 to \$5,000 per year.

The ordinary laborer is paid from 50 cents to \$1 per day. The natives who board themselves receive \$20 to \$25 per month. The Asiatic laborers who find themselves get \$15 to \$16 per month. The planters find it best to feed their labor, and give them strong food and meat to enable them to perform the hard and constant work required on a plantation. The avarice of the Asiatics and their desire to hoard and accumulate money leads them into an economy of food bordering on starvation, which prevents them from receiving that strength necessary for the heavy labor in the fields. The Chinese live mostly on rice and water, when they buy their own rations, and have but feeble muscles to lift the burdens about the mills. The climate is so mild that but little clothing is needed, and many do not wear shoes.

The natives of the islands live also on plain and simple food, mostly *taro poi* and fish. As they are a mild and tractable people, those who will work are in request and well paid. The Portuguese are moderate workers, but headstrong and not easily governed. The South Sea Islanders, as a rule, are extraordinary hard cases, and cannot become subject to discipline. They learn slowly, and are stubborn in the extreme. The Chinese are regarded as fair workers for light duty, but are full of whims and difficult to control. They follow their leaders like flocks of sheep, and do not hesitate to go on strikes whenever the idea enters their Oriental skulls. They catch on to the foreign labor ways early, and after some thought can give their Caucasian competitors points in the invention and detection of grievances.

Many of the Mongolians brought their "striking" philosophies over with them from California. I have seen brigades of Celestials locked up by order of the island magistrates for violation of contracts, and some days' smoking at their opium pipes would be necessary to prepare their minds to resume work. The

Japanese are not considered as alert in catching new ideas or so ready in "getting the run" of foreign labor as their Chinese opponents, but they are a meek and industrious race and easily managed. The common grade of European labor—not having had experience in sugar culture—has not been introduced in much force on the islands, and are not as much in request as Asiatics.

The hands are directed in squads by foremen who speak their language. The foremen are under the direction of white or Hawaiian overseers. The South Sea Islanders are difficult to direct, as the overseers do not understand the islanders' language, which adds to the confusion and lethargy of the stupid and otherwise slow-moving natives. Such directions as are given are communicated by signs, and the denizens of the South Seas are taught the arts of agriculture somewhat like the inmates of a deaf and dumb asylum are trained.

A month's work consists of 26 days, and 10 hours in the fields constitute a day's labor. The working hours begin in the fields at 6 a. m. and extend to 4.30 p. m. No liquors are furnished the hands, except under a doctor's orders, and the help are generally kept sober. If a man sells a Hawaiian whisky he is fined \$1,000 and put in jail. But few drams are sold under these penalties.

#### Jefferson as a Landscape Gardener and Horse Trader.

Thin the trees, cut out stumps and undergrowth, remove old trees and other rubbish except where they may look well. Cover the whole with grass. Interperse jessamine, honeysuckle, sweet briar, and even hardy flowers which may not require attention. Keep in it deer, rabbits, peacocks, guinea poultry, pigeons, etc. Let it be an asylum for hares, squirrels, pheasants, partridges, and every other wild animal (except those of prey). Court them to it by laying food for them in proper places. Procure a buck elk, to be as it were Monarch of the wood; and keep him shy, that his appearance may not lose its effect by too much familiarity. A buffalo might perhaps be confined also. Inscriptions in various places on the bark of trees or metal plates, suited to the character or expression of the particular spot. Benches or seats of rock or turf passim.—*Extract from Jefferson's Current Expense Book.*

One of his pet ambitions, as above recorded, was a herd of deer at Monticello, and a number of entries relate to such as were brought to him by the people about and purchased at prices ranging from two to four pounds. And Jefferson could never resist a horse "trade." He bought, sold, and traded, in this time, not less than 20 horses, little dreaming that he was thereby in the end to aid in mounting the troopers with which Tarleton, the British "partizan," harried the State in 1781. And the following note would seem to show that Jefferson was successful in his trades:

"1774, Jan. 8. Exchanged with John Hylton my black horse for a sorrel mare which he says was five years old last June. He supposes she is with foal by young Fear-nought, and if she proves to be so, I am to pay £3 for putting her to horse."

"Jan. 10. I have promised to give J. Hylton 40 shillings more to boot between our horses, he being dissatisfied with the first bargain."—*Scribner.*

#### Punishments in Morocco.

The notion of suiting the punishment to the crime, however it may have found favor with the great mediæval Sultans of Cordova, does not occur to the Marroquine officials of to-day.

A Moorish law court is a parody of all that Europeans mean by justice. Extortion is the main object of the Judges, and the contempt for suffering is absolute. The rich may escape with whole skins, but those without "palm oil" have scant mercy. For instance, the mere accusation of a paltry theft, if made from some favored quarter, will bring on the accused the ordinary punishment for such conduct. This consists in breaking the ankle bones and pitching the sufferer into the nearest lane or ditch, whence his relatives may or may not remove him. As there are no Surgeons and no medical appliances, the bones cannot be set and reunite so as to leave the toes turned inward directly facing each other. At Tangier I have several times seen one of these poor creatures—possibly quite innocent of the offense attributed to him—hobbling over the cobbled alleys, while the passers-by nudged each other and muttered "Thief."

In the prisons men and women, chained together night and day under every circumstance of indescribable filth and horror, wait until their friends, who bring them all the food they get, are able or willing to offer a bribe sufficient for their release. I might go on with many details, but I merely want to indicate the one paramount fact of the absence of all system, principle, order, or responsibility among the so-called Government officials who sell justice or injustice in the name of Muley Hassan, and who are sure to find favor in his eyes so long as they keep the cherifian coffers well filled.—*The Nineteenth Century.*

#### Nile Mud.

In the course of a discussion which took place recently after the reading of a paper at the Society of Arts, Mr. J. Hughes referred to the composition of Nile mud, the fertilizing value of which has always been regarded as being so great. Samples of this mud he had some years ago had occasion to analyze, and he found two special points about it which were not generally known. One of these was that the water was remarkably soft, and the other that it contained a considerable amount of nitric acid. The mud, in fact, was a complete manure, containing all the essentials for the food of plants in a very fine form, which alone was a great advantage.



## THE BEND OF THE ROAD.

### The Patient Waiting and Expectancy for One Who Never Came.



AN OLD man leaning over a gate at sunset. In the background a farmhouse and buildings surrounded by meadows; in the foreground a white, dusty country road.

This was the picture presented to my eye—the picture round which the story is written.

He was a tall old man, and his frame, bent as it was, must have been exceptionally powerful in its day; but now there was an appearance of weakness pervading the entire personality. The hand that clutched the gatepost was a feeble one; the face, with its look of patient expectancy, was very wan and drawn, though it might be more by sickness than age, and the

eyes that were bent upon the winding road before them were dim as though the light was fast departing from them.

His eyes were bent upon the road, the dusty whiteness of which was unsullied except by the presence of my own somber, travel-stained figure, for I was on my way to the village which lay beyond, round the bend of the road; but there was something in the solitary form before me that caused me to slacken my pace until I was almost at a standstill.

I noticed that the old man's weak gaze seemed to be fixed upon just this same bend of the road, and from something in his attitude and expression I judged him to be waiting for someone whom he expected to come from this direction. In accordance with the custom of the country, I wished him "good evening."

He answered back in a weak, quavering voice, which seemed little in accordance with the massive frame to which it belonged.

"Good evenin' to ye, sir."

I was about to hazard some other remark—such as it being fine weather for the crops—when the old man suddenly became violently agitated. His gaze, which for a brief instant while I spoke had been diverted from that particular spot upon which it had been fixed, returned thither, and was now riveted upon some approaching object which, though some distance off, was yet perceptible even to his dimmed vision.

"Look, Maggy, look!" he cried, in trembling eagerness; "see there, at th' bend o' th' road! I can see summat red like."

And he pointed with a shaking finger.

I have spoken of the old man's solitary figure—and so it had at first appeared—but now, as he uttered these words, I was aware of that of a woman, a little way behind him, which I had previously overlooked. She now came forward and, bending over the gate beside the old man, looked down the road. She was young—quite a girl—and her face, so far as I could see it under the penthouse of sun-bonnet, was pretty after a pale, pathetic style, but from something in her dress and manner I judged her to be somewhat lower in station than the old man. The hand with which she shaded her eyes as she looked down the road was red and roughened by hard work, and yet in her eyes I thought I saw the same expression of patient waiting and expectancy which I had read in those of him who had addressed her as "Maggy."

"Look, Maggy, look!" the latter cried again. "It's comin' nearer. Is it some 'un in a red coat, think ye?"

And his excitement was so great that he was obliged to cling to the gatepost for support.

The young woman gazed for a moment down the road, and the hand that shaded her eyes from the rays of the setting sun trembled. Then she turned to the old man, and I fancied I heard the ghost of a sigh as she answered him, as one would answer a child.

"No, daddy, no; not this time. 'Tis only Farmer Drake's wife in her red shawl drivin' home from market."

The old man's excitement died out as rapidly as it had kindled, and his face took upon it its former look of pathetic patience as he quavered out:

"Aye, Maggy, lass, ye're right, ye're allers right; but he's sure to come soon. If not to-day, to-morrer, or maybe next day."

Then his eyes fell upon me again, as, impelled by some feeling of mingled sympathy and curiosity evoked by the little scene I had just witnessed, I had lingered by the gate.

"We're a-watchin' fur our Joe," he explained with a feeble smile as he uttered the name. "He's bin in furrin parts, but he's comin' home now; eh, Maggy?"

"Yes, daddy," she answered, with a faint smile like his own and a note of cheerfulness—feigned or otherwise—in her voice, "he's comin' home—soon."

I bade them both, the old man and—for so I judged her to be by her addressing him as "daddy"—his daughter, "good evening" and left them. Before I had gone far I encountered the very woman in the red shawl the delusive appearance of which had, it appeared, raised false hopes in at least one breast. She was driving a cart from which came the cackle of poultry, and presented a perfect embodiment of rural prosperity; and yet I felt, vaguely, that I owed her a grudge for being herself instead of someone else.

When I, too, reached the bend of the road, round which the village lay, I looked back.

The sun had gone down and a coldness had fallen upon the landscape, but I fancied that I could still see the two waiting figures at the gate.

I remained some days at the village and made the acquaintance of the clergyman, who owned the living and preached two sermons per week to a drowsy and limited congregation in an old, old church, the date of which was not known to a century or so. One day I met him coming out of the very same gate over which I had seen the old man leaning while he looked down the road. Without any inquiry on my part he at once began to tell me the latter's simple story.

"I have been to see old Farmer Brett," he began, as he turned and walked with me. "At least, he is not so old in actual years, perhaps, though he has aged wonderfully since his son went away."

"His son Joe?" I questioned.

"You know him, then?"

"No," I answered; "that is—go on."

"Well, you must know his wife died some years back, and he had only this one son, Joe, a fine young fellow, over six feet and as strong as a giant, but rather harumscarum. There was not a bit of harm in him, though, and he was a favorite with everybody. Somehow he and his father could not hit it off together. Old Brett was rather a hard man—yes" (I suppose I had given some indication of surprise), "you would not think it to see him now, but then he is only a wreck of his former self, and is changed in many ways—indeed, he is hardly the same man. Well, it had been his father's expressed determination, ever since Joe was a youth, that he should marry his cousin, who, when her father died, would inherit a good bit of property. All went smoothly enough at first, and it seemed that old Brett's wish was in a fair way of being accomplished, when what does the young fellow do but fall in love, in his usual headlong, reckless manner, with the daughter of one of his father's laborers. Maggy Dale was a good girl and superior to her class, but, of course, it would be a terribly bad marriage from old Brett's point of view.

"I believe there was a terrible scene between father and son when it came to the former's ears. It ended, at any rate, in the old man ordering the young one either to give up all thought of the girl or leave the house then and there. Joe Brett took his father at his word, left his home that very night, and has never re-entered it since.

"Weeks went by and nothing was heard of him, and his father, who had soon repented of his harshness, sought news of him in vain. At last a letter came. Joe Brett had enlisted in a regiment which was ordered on foreign service, and the letter was actually written on shipboard. In it he implored his father to forgive him, said that he would never give up Maggy, but there was prospect of hard fighting before him, and, perhaps, when he returned, his father might have reason to be proud of him and take back some of the cruel words he had thrown at him."

The Vicar paused.

"Then that was the girl I took to be the old man's daughter, since she called him daddy?"

"Yes, that is the most pathetic part of it. When the father realized that his son had gone from him, perhaps to meet his death, it brought on a fit of some kind which was followed by a long illness, which changed him from the fine, stalwart man of middle age to the wreck he now is—broken in health and spirit, and with but one great longing, to see his son once more, and one source of comfort, the companionship of the girl for whose sake he drove him from his door."

I told him of the scene I had myself witnessed.

"Ah, yes," was the reply, "every evening, as the sun goes down, those two stand together and look down the road along which one day they hope to see the wanderer returning; for I must tell you that the regiment has been ordered home, and it is not without reason that the old man watches at the gate."

He paused for a moment before continuing.

"Only I hope if he does come he will come soon, for I fear the old man's strength is failing fast."

After this I always contrived to pass by the farmhouse at least once in the course of the day, generally toward sunset, when I was sure to see the old man and the girl, in both of whom I now began to take a strong interest, waiting at the gate. They were always standing in the same attitude and looking in the same direction, and the old man's eyes would be strained to catch the first glimpse of any approaching figure as it came into view round the bend of the road.

We used to exchange greetings, and always the old man would inform me in his feeble tones that they were looking out for "their Joe."

Sometimes, too, he would indulge in a few details.

"Our Joe, he's bin in furrin parts a-fightin' fur th' Queen. Oh, yes, he were allers a darin' one, were Joe. I mind him when he were but a bit o' a lad, he'd think nowt o' standin' up to one twice his own size. He never knowed what fear was, didn't our Joe. Ah, I guess they ain't got many like him, an' when he comes home he'll be showin' us th' medals he'll a-won, fur he were allers a famous hard hitter, an' I make no doubt he'll a-done his dooty fur his Queen an' country, an' we'll all be proud o' him, won't us, Maggy?"

It was touching to see how he always turned to the girl he had once scorned and scouted for confirmation and sympathy in everything that related to the absent one, and how he invariably recognized and proclaimed her rights by referring to him as "our Joe."

But each day that passed seemed to leave him feebler than the last, and after



a time a chair had to be brought out and placed for him at the gate, where he could sit and watch the road. One evening—I remember it well—I found him sitting there, his face still turned in the old direction and his eyes strained to catch sight of the red coat in which he fondly hoped to see his son attired, “with his sword by his side, an’ his medals on his breast, an’ maybe th’ boys from th’ village cheerin’ him.”

I stopped as usual to talk with him. He struck me as looking very frail, and, with something like a pang, it was borne in upon me that unless the longed-for meeting occurred very shortly, it would never take place at all in this world. However, he was unusually hopeful. To-morrow, he told me, would be Joe’s birthday. No doubt he would come to-morrow. He was—“let’s see, how old is he?” And he turned to Maggy.

“Twenty-seven, daddy,” she answered.

“Ay, ay, to be sure, so he were, though it were wonderful how he’d shot up. Seemed but yesterday as he were a bit o’ a boy, playin’ truant from school to go birdnestin’ or blackberryin’.” Ah, he were a limb, were Joe!

I looked at Maggy. Did she, too, entertain the hope that he would come on his birthday? If so, how was it that she looked so pale and sad? Did she find the waiting too long? Had hope deferred made her heart sick?

But the old man was speaking.

“P’raps ye’ll drop in to-morrer, sir, an’ see Joe? I make no doubt as he’ll be here, an’ I shall be up fine an’ early to meet him. Maggy, too, must put on her Sunday gown, an’ look her bonniest, eh, Maggy? Ye’ll be wantin’ to show our Joe what a fine young woman you’ve grown while he’s bin away?”

“Yes, daddy,” she answered, with the ghost of a smile flickering for an instant across her features and then dying out.

Next morning early I was aware of a sense of commotion and pleasurable excitement abroad in the village. Little groups gathered in the roadway, and busy housewives, appearing in their doorways, shouted the tidings to each other across the street.

“Hast heard th’ news? Joe Brett’s come home. Maggy Dale heard stones thrown at her winder this mornin’ when ’twas hardly light, an’ looked out, an’ there he were, with his red coat an’ all, an’ he waved his hand an’ pointed to his father’s house, as much as to say he were goin’ there, an’ she’d see him agen later.”

It was about sundown when I passed the gate where the old man used to stand and look down the road. There was no one there now, and I easily imagined to myself the happy little group assembled together in the old homestead. I bethought me of the old man’s invitation to drop in and see “our Joe.” It seemed rather too soon to intrude upon them, but after a moment’s hesitation I opened the gate.

“No doubt,” I thought, “I shall find the young fellow no better and no worse than others of his class; but I am glad—I am very glad he has come in time, for I fear his father is going fast.”

I found the door of the house ajar, and as I paused for a moment on the threshold I heard the old man’s voice speaking within. The tone itself would almost have acquainted me with the good news even had it not been the common talk of the village.

“Eh, lad, but I thought as ye’d come on yer birthday—with yer red coat and yer medals, too, so grand like. But ye’re only jest in time, Joe, ye’re only jest in time; fur I’m goin’ fast, though I can die in peace now as I’ve seed ye once more an’ know as ye’ve forgave yer old father th’ hard part as he acted to’rds ye.”

Not willing to remain longer an involuntary eavesdropper, I pushed open the door and entered. The old man was sitting in his elbow chair facing me. The waning light from the window at his side fell upon his face, showing it almost wax-like in its pallor, and yet irradiated by an expression of the deepest joy I had ever seen on any human countenance. Behind him, half in the shadow, was the girl Maggy. Her face was as pale as the old man’s; her lips were parted, and her hands clasped convulsively as she listened to the words that fell from him. So silent and motionless was she that she appeared more like a statue than a living being.

There was no one else in the room.

Meanwhile the old man still went on speaking.

“It would a’ bin a dreadful disappointment if ye hadn’t a’ come to-day. Maggy an’ me’s bin lookin’ out fur ye so long. There’s never hardly bin a night as we haven’t watched fur ye from th’ gate, fur we knowed as ye’d come from th’ village an’ round th’ bend o’ th’ road, an’ we wanted to be th’ fust to see ye. An’ to think as ye should a’ took us by surprise arter all!”

He broke off and began to pass his trembling hand up and down and round about as though feeling for something before him.

“An’ it’s fine ye look in yer red coat an’ all. Eh, but ye’ll be turnin’ all th’ girls’ heads an’ makin’ Maggy jealous”; and he laughed a feeble little laugh.

But the girl behind him uttered no word, only clasped her hands tighter, while her face gleamed ghostlike in the shadow. Neither of them took any heed of my presence; the old man, I was sure, had not even observed it. I longed to withdraw, and yet feared to disturb them by a movement. Then I heard a foot crunching the path outside. The sound released me from the spell that held me to the spot and I turned and left the room.

As I softly closed the door I saw the Vicar coming toward me. He held a letter in his hand and looked troubled.

“I have bad news here,” he said, “very bad news. Joe Brett is dead. He died on the voyage home. This is a letter asking me to break the news to his father. How shall I do it?”

“There is no need,” I said.

The old man died at daybreak. Those who were present spoke with awe of the unseen presence, visible only to the father’s eye, that hovered around the death-

bed. He passed away peacefully, even happily, for he went down into the Valley of Shadows hand in hand with “our Joe.”

His last words were to the girl who had been wont to watch with him at the gate.

“Maggy,” he whispered, “we’ll wait fur ye—Joe an’ me—an’ we’ll see ye comin’ round th’ bend o’ th’ road.”—*All the Year Round*.

### Decorating With Autumn Leaves.

It will soon be time to prepare Autumn leaves for Winter decorations. These are very beautiful if used with taste and not too profusely. Collect them, choosing a variety of colors as perfect as can be obtained. Oak, beech, poplar, black-berry, and maple are suitable for this purpose.

Various ways are recommended to make them keep their colors and shape. One is as follows: Cover the table with newspapers and a cloth; rub a flatiron lightly with beeswax, and having smoothed out the leaf upon the table, rub it over carefully on both sides until it is thoroughly dried. Another iron rubbed with a bag of resin is to be passed over it afterward, and this makes it hard and glossy. Another way which I like better, because it leaves the leaves more flexible, is to wipe both sides of each leaf with linseed oil. This seems to bring out the coloring and keep them better than by the other method.

Now, as to the ways of decorating. If a room is not papered or has not a frieze, the latter can be made by tacking the leaves in a pretty pattern around the top of the side walls, letting sprays run up on the ceiling if liked. Of course, this is considerable work, but it can be done by employing an hour at a time, or by having several persons work together. Bunches of Autumn leaves may be placed over pictures and also over doorways, and in any other places where they are out of reach of the everyday happenings that might destroy them.

A very pretty screen was made by having a frame and then placing the Autumn leaves upon a thin background and lightly tacking in bunches. Over this was a covering of sheer tarleton. This not only preserved the leaves from harm, but gave a softened effect, which was exceedingly pretty. The frame of the screen was painted white. The Autumn leaves may be used for many purposes in their season. One of the prettiest show windows I ever saw was that of a jeweler in Philadelphia. The bottom of the window was covered with black velvet laid in loose folds or bunches. Through this here and there were beautiful Autumn leaves, their rich coloring brought out by contrast with the glossy black of the velvet. Scattered among these were sparkling diamonds, it being a diamond display, and no other stone or jewelry placed in the window. The effect was unique and rich beyond measure.

Where taste is employed many of the most common things may be made to minister to the sense of the beautiful.

### Bird Superstition.

In Wright’s selection of Latin stories there is an account of a woman described as lying on her deathbed, when her daughter urged her to send for a priest that she might confess her sins, to whom her mother replied: “Why? If I am ill to-day, to-morrow or next day I shall be well.” But the daughter, seeing she became worse, brought in several of her neighbors, who urged the same thing, to whom she said: “What do you talk about? or what do you fear? I shall not die these 12 years; I have heard the cuckoo who told me so.” At length she became speechless and was at the point of death. Then her daughter sent for the priest, who came, bringing what was necessary to perform the last duties, and approaching her, he asked if she had anything to confess. All she said was “Kuckoo” (cuckoo). Again the priest offered her the sacrament and asked her if she believed the Lord was her Savior, and she replied “Kuckoo,” so the priest went away, and shortly afterward she died.

In a celebrated French romance of the 13th century, published by Meon, a M. Renart and his wife hear the cuckoo’s notes early in the morning as they lie awake, talking and planning what they will do and be in the future that lies before them. M. Renart thinks he would like to know how many years will be given him in which to enjoy life, so he implores the cuckoo to tell him. “Cuckoo, tell me truth, how many years have I to live? I wish very much to know, cuckoo.” The cuckoo answered promptly 13 times. Then M. Renart turns to his wife and embraces her. “Did you hear?” he asks. “Sir,” said Mme. Emengart, being a dutiful wife, and very respectful to her lord and master, “Sir, I heard gladly, and demand you will kiss me.” “Dame,” said he, “I am quite rejoiced.”

### Some Queer Food.

The hedgehog figures frequently in sylvan repasts, though he is hardly big enough to be sent to the table as a *piece de resistance*. The primitive manner of cooking it supersedes the most costly refinements of elaborate *batteries de cuisine*. The elephant’s foot, or rather the slice below the pastern, which is a famous dainty in Eastern hunting camps, is treated on precisely similar principles, which shows that the simplest cookery of all nations has much in common, like their folk-lore. Shakspeare’s British hedgepig, like its cousin, the porcupine, is shrouded in a plastic tenement of clay. Then he is laid to temporary rest in a bed of smoldering cinders. When supposed to be done to a turn, the dwarf pig is dug up, and then the prickly skin is detached with the splitting of the case of clay. All the generous juices, with their bouquet, have been confined and transfused.—*The Saturday Review*.



## THE AMERICAN FARMER.

"O fortunatus nimium sua ei bona norit agricola."—VIRG.

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## THE UNDEVELOPED RESOURCES OF A COUNTRY.

THE AMERICAN FARMER insists that there is no poor country. All countries have possible resources on some lines of industry that human skill and enterprise can turn to profitable account. The alkaline plains of the West, so barren that only sage brush will grow, are, under the system of irrigation used, now most fertile lands. The South Carolina rock area in South Carolina were entirely worthless until science demonstrated the inexhaustible mine of wealth they contained that should fertilize the exhausted farms of the South. Now their value is almost beyond the purchasing power of money. The valley of the Pecos River in New Mexico was a desert land before the irrigating ditches were constructed. That valley now promises to be the richest valley on the Continent for agricultural wealth and health to invalids.

Some years ago by failure of crops the people of southern Missouri were reduced to suffering. They were a plucky sort of people, and refused to ask succor of the more fortunate regions. By some means it was discovered there was a cash value to various roots and herbs that grew wild in the woods. Hundreds of men, women, and children found profitable employment in digging ginseng, angelico, black root, sassafras root, bitter sweet, and other roots. For a number of years "root diggers" could make from \$1 to \$3 a day after the corn crops were laid by and before the crop season came again. Hundreds of tons were gathered and sent to market.

Near Sebago Lake, in the State of Maine, the preparing of nail keg hoops gives employment to the people, and no inconsiderable amount of money is made. The cutting and peeling of

alder wood for making powder gives support to many people.

In southern Illinois the hoop pole industry was profitable many years ago, and young men found the means by which to enter and improve valuable prairie farms.

The State of Maryland has a most lucrative industry in the cultivation of oysters in its rivers, coves, and water front. The industry in fish, oysters, clams, crabs, diamond-backed terrapins, and canvas-backed ducks gives employment to thousands of men to the detriment of Maryland agriculture.

The trade in prairie hay once was profitable in Illinois, Missouri, and Iowa, and is yet in Kansas and Nebraska. In Clover Valley, Nevada, thousands of tons of wild clover hay are cut, baled, and shipped annually. The land is without price, or was a few years ago, and the hay costs o'ry the cutting and baling. On the low wet lands south of Chicago, some of it belonging to the Government to this day, and wholly unfit for agricultural purposes in its natural condition, a large growth of grass is annually cut and sold for bedding and packing purposes in Chicago. In North Carolina and Georgia, where the long-leaved pine grows, a method of treating pine straw or leaves converts it into a valuable material for mattresses, upholstery, etc. A fiber, too, is produced from pine straw that is capable of being spun into cordage, and is woven into matting and coarse carpets.

No region, perhaps, in the United States equals western Pennsylvania in variety and wonders of developed wealth. Fifty years ago the salt industry was valuable. When the wood became scarce it was hauled several miles to boil the salt kettles before it was discovered that the hills were full of coal. Now the lumber is valuable, but for fuel purpose wood is unimportant. With coal, petroleum, and natural gas, unsuspected and unknown 50 years ago, no region is so rich in natural utilized resources.

The discovery and development of natural resources gave rise to the artificial industries, and demands for labor are increased and the investment of capital encouraged. New centers of population are made, and agriculture finds possible means of supplying food and clothing to suit the demands.

No, there is no poor country; all countries are fit for something, and when so used are able to compete with other regions successfully.

TAKING as a basis Carlyle's dictum that an acre should support nine lives, an anti-tobacconist figures out that we waste in tobacco ground that should support a population of 7,000,000.

## FRUIT AND OTHER CROPS IN EASTERN MARYLAND.

Mr. J. W. Kerr, of Denton, Md., than whom there is no better advised authority, gives us for THE AMERICAN FARMER the following summary of the crop season on the eastern shore of Maryland, under date of Sept. 19: "The drouth has been prolonged and severe in this section; corn not more than two-thirds of an average crop; tomatoes little more than half a crop. Fruits, such as apples, pears, and peaches, in nine orchards out of every 10, scarcely sufficient to meet family demands.

"Plums of the native species produced good crops and brought fair prices all through the season. Strawberry growers did not realize near what they had hoped for. Early potatoes were a failure, and other vegetables all injured more or less by the drouth. Sweet potatoes seem to bear up under dry weather fairly well; but, taking it all in all, the season has been unfavorable to farmers and fruit growers. The former in many instances are unable to prepare fallow for wheat seeding, and unless a change occurs very soon, the acreage of fallow seeding will be considerably diminished, as in the present hard and dry condition of the soil it is practically impossible to plow it properly and prepare it as it should be to receive the seed.

"A great deal of Italian or scarlet clover that was sown in July and August was killed out by the intense heat and drouth."

The Agricultural Department's report of the condition of the crops for August shows that the average condition of corn was 42.5, with Utah standing at the head, with a condition of 99; with South Carolina, Georgia, and Tennessee close behind, at 97, and Michigan, Indiana, and Illinois at the bottom of the list, 73. In Spring wheat the general condition is 87.3, with Maine at the head, 97 and Oregon at the foot, 76. Oats register 83.2, with Maine at the head, 97 and the other New England States, New York, the Carolinas, Mississippi, Louisiana, Arkansas, Tennessee, West Virginia, Kentucky, Montana, and Wyoming but a point or two behind. Missouri does worst, 73. Massachusetts and Connecticut do best, and Indiana worst in tobacco. New Mexico and Idaho do best in apples, 94, and Illinois worst, 31.

ENTERPRISING men are making money in New England by buying up for a song abandoned farms and converting them into sheep ranches.

THIS is a good month to quarantine the fields against weeds.

## WHAT IS A GOOD FARMER?

The usual reply is the man that raises good crops uniformly and that makes money. This is true in one sense, but in another it is entirely false. Any good worker with average judgment can get good crops from rich lands. It is, however, no test of skill, judgment, or energy. The really good farmer is the man that raises good crops on lands that were naturally or incidentally poor. It may be that the crops of wheat and corn yield less per acre, but in a series of 10 years will be of a higher average than on the lower and more fertile lands. The man that improves a farm and produces good crops is entitled to the credit of being a good farmer all the time and in any country.

THE reverses of cattle raisers in New Mexico for a number of years back has had the effect of reducing the number of cattle on the ranges. It is conceded that the country is better suited to the raising of sheep than other stock. The late conversion of wool growers at Albuquerque, among other things pertaining to range wool growing and progressive measures possible for the benefit of ranchmen, will discuss the question of more expansion and extensive occupation of the Territory by flocks. If this question is well discussed and progressive measures set agoing and well followed up, it is believed a greater prosperity shall be attained in sheep than has hitherto come to New Mexico. It is, strictly speaking, a sheep country, and should be so used if it would be prosperous.

A MOST annoying blunder has been made by the English seedsmen to whom orders were sent for seed of the fodder rape, filling them with seed of bird rape. The latter is useless for fodder. As it blossoms the first year, while the fodder species does not until the second, the difference can now be detected in that planted, and Prof. Craig recommends that all fields of rape which have bloomed be promptly plowed under.

CANADA and England rely upon catch crops and cheap supplies in sheep raising. Australia and South America have a climate that reduces the cost of keeping to a minimum. Texas and much of the ranges have advantages in pastures that cost nominally nothing. The grain-growing regions, however, depend upon high-priced food supplies, and are, as wool growers, depressed.

THE Louisiana farmers complain that they are the serfs of the commission men, who virtually own them and all that is theirs.



**TURNIP FARMING.**

The turnip has an importance in English farming that has not been appreciated in this country. It is given a prominent place in the general rotation of crops, and is the basis of all fertility and agricultural prosperity in that it is the very sheet anchor of live stock industries.

M. M. Milburn, in *Sheep and Shepherd-ing*, says: "The greatest impetus to sheep farming in England was given by the introduction of turnips. It is not easy to determine the exact date of the first use of turnips in the British Isles."

In the annual report of the United States Department of Agriculture for 1847, we find the turnip was first introduced in England by Sir Joseph Banks, about 1777. This is evidently an error, because it is certain that the turnip had been established in England for some years when Bakewell began his life work in the improvement of sheep, which was about 1755. We find in 1684, according to Worlidge, whose testimony is given with all the authority of a man who had practical proof for his statements: "Sheep fatten very well on turnips, which prove an excellent nourishment for them in hard Winters when fodder is scarce, for they will not only eat the greens, but feed on the roots in the ground, and scoop them hollow even to the skin." As an economy he goes on to say: "Ten acres sown with clover and turnips will feed as many sheep as 100 would have kept before turnips were grown in England."

Never had the sheep farmers and the flesh loving people of England so ready and economical a way of securing a supply of mutton, especially at the period of Winter when fat or eatable mutton was in request. At an earlier period it would have been difficult to obtain, and possibly obtained at the expense of hay and corn. In proof of this we find that in 1314 distinctions were made by an act of Parliament between "grass fed and corn fed sheep," which meant Summer and Winter mutton.

This turnip food was appreciated finally by English sheep raisers, and led to the first energetic and general improvement of sheep.

In 1699 there were said to be 12,000,000 sheep in England, and the carcass of a sheep was valued at seven shillings six pence. The fleeces had an average value of 10 shillings four pence, and it was the boast of the writers of that period that no country but England and Ireland having a sward or turf could bear sheep producing the wool of which English draperies were made, nor such luscious mutton for food.

The manner of feeding turnips to sheep varied in different parts of Eng-

land. In Derbyshire turnips were sliced and fed with dry food. In every County turnips are the reliance of sheep farmers.

Mr. William Brown says in *British Farming*: "The feeding of turnips on those pastures which are to be broken up in the Spring is universal, and in severe weathers hay and oats are given with them. When turnips are exhausted the sheep are put on grass till July, when the lambs are weaned. At Michaelmas lambs are turniped, some getting hay, also corn and cake, and they are mostly disposed of before they are two years old. Turnips and vetches are eaten on the land by the sheep during the latter part of May to August, when vetches and rye are used. From January to April they have cut turnips, mangold, rye, trifolium, and vetches."

It will be seen how much reliance is placed upon this crop as providing a more regular food supply than had been known to English farmers. The climate of England may favor turnip raising and feeding on the land more satisfactorily than the more northerly portions of the United States.

It is quite probable that the special attention given to turnip farming gives more uniform results than has heretofore been obtained by growers in this country. It is recorded how the English farmers opposed the raising of turnips for a number of years after their adoption by the few progressive agriculturists who saw the advantages of an abundant and uniform food supply. They had not learned how to grow nor to feed them judiciously. It is noticeable that in some localities they relied upon turnips alone, while in other sections they were fed in connection with dry food, oil cake, and grain. In some instances the farmers practiced what is known as "folding" the sheep on turnips, and also on pastures. Just why American farmers should not have pursued this course must be accounted for by the cheapness of food crops and the higher prices of labor. While lands are so cheap and the soil so fertile as not to need the attention to methods of fertilization required in older countries, our farmers will continue to feed the more expensive crops in growing and fattening sheep. There are, however, to be found many farmers in the Northern States that find turnips and beets a very profitable and important crop for feeding stock on their farms. One of the best farmers in New York always raises from 12 to 15 acres of turnips. If the six or eight acres of sugar beets produce enough to fill his root cellar, not a turnip is pulled, but left to rot on the land as a fertilizer, which he finds quite valuable enough to pay for the expense of raising.

It is impossible to estimate the

value of the turnip to English agriculturists. Without the turnip there would be no sheep raising in England; without the sheep English farms could no longer be profitable, and England would no longer be the first agricultural, manufacturing, and commercial nation of the world. In other words, turnips are the sheet anchor to British sheep husbandry, and sheep are the sheet anchor to British agriculture.

Turnips may still be sown in all the regions south of the latitude of Washington, D. C., up to date, but a small area has been sowed owing to the dry condition of the soil. The recent rains have put the ground in splendid condition for preparing the land. Much may be done now to keep out a short potato crop, which from present appearances seems to prevail throughout the larger part of the country. The cost of seed and preparation of the land is so trifling that the chances of a crop of turnips need not stand in the way of trying late turnips. The choice of varieties must be left to the experience of local growers. The hardier and quick-growing varieties will at the late date give better satisfaction.

**NO PLEURO-PNEUMONIA IN THE UNITED STATES.**

The cattle raisers and the people of the United States have reason for congratulation in the fact that the cattle plague known as pleuro-pneumonia has, by the bold persistence and official labors of the Department of Agriculture, been stamped out of existence in every part of this country. This disease stood as a specter in the way of selling cattle in a foreign market, until the Government had the courage to investigate the disease in the light of science and find the way of overcoming it. The Bureau of Animal Industry had no trifling task before it, but as an official part of the Department, with the force of the Government behind it, the work when once begun showed no hesitation or weakness until the work has been accomplished. The work is fully accomplished, as the following notice from Secretary Rusk shows:

The official proclamation by the Secretary of Agriculture of the freedom of the United States from the disease known as contagious pleuro-pneumonia has been delayed until six full months from the occurrence of the last case, on which occasion the animal found diseased, as well as all others with which it had been in contact, was at once purchased and slaughtered, the premises being quarantined to all cattle from that date to the present time. Although in many cases four months is regarded as sufficient, this extension of the period of complete immunity from four to six months was adopted so as to satisfy the most conservative and apprehensive that the grounds for the present proclamation were ample and its issue and the raising of quarantine in the United States for this disease thoroughly justified by the facts. The inspection system adopted by the Department has been maintained in full force and efficiency in those districts heretofore infected during that

period. The seaboard and frontier inspection and all necessary cattle quarantine will be strictly enforced, and there being no possibility of the occurrence of contagious pleuro-pneumonia, save by its introduction from foreign countries, the country may congratulate itself upon the removal of all apprehension for its cattle interests on the score of contagious pleuro-pneumonia.

This most happy announcement confirms the expectations of the people in the official power of the Government to protect the agricultural interests and the integrity of trade with the foreign markets. The nations of the world must rejoice with our people that one Government has the confidence of its intelligent citizens, who have stood by the National officials in the work that seemed so formidable. This removes the last barrier to the free and unobstructed trade of American beef cattle in the English market. All praise to Secretary Rusk and the Department of Agriculture.

**PERSONAL.**

We have received the following letter from G. W. Talcott: "I write to inform you that my father, Henry Talcott, is seriously ill with a low form of catarrhal fever. Although I do not consider him in any immediate danger, yet we cannot tell what may occur. He has not been in good health for a year past. Last October he had a stroke of apoplexy, and was just recovering from it when, in January, 'La Grippe' set in; but during the Summer he improved very much and was able to do a little work. I hope I may be able in a few days to write you that he is better and entirely out of danger."

**BUREAU OF INFORMATION.**

Henry Axley, Chillicothe, O.—The custom of placing craps on the door of a house where there has been a recent death had its origin in the ancient English heraldic customs, and dates as far back, at least, as the year 1100 A. D. At that period hatchments or armorial ensigns were placed in front of houses when the nobility and gentry died. The hatchments were of diamond shape, and contained the family arms quartered and colored with sable.

Mary Helgarth, Keokuk, Iowa.—Bonchut estimated that a child requires—For the first month, 10 meals per diem of two ounces cow's milk. For the second month, seven meals per diem of six ounces cow's milk. For the third month, seven meals per diem of eight ounces cow's milk. For the fourth month, seven meals per diem of 10 ounces cow's milk.

**RAISE CLUBS.**

We want every one to try to raise clubs for THE AMERICAN FARMER. It is a splendid journal, and will find favor in the eyes of all who see it. It ought to be very easy work to get subscribers. We will make good inducements for sons and daughters of farmers to get up clubs. Write for terms to club-raisers, and premium lists.

**SAMPLE COPIES.**

We shall be glad to send sample copies of THE AMERICAN FARMER to any address that may be furnished. Those who wish to see the paper, or who want their friends to see it, will confer a favor on us by sending in requests for specimen copies, to be sent to any address they furnish.

Address all communications to

THE AMERICAN FARMER,

Washington, D. C.





### Summer.

"Summer is coming," sing youth and fair maiden,  
And the swift, red blood makes the pulses beat fast,  
While watching life's tree with luscious fruits laden,  
That ripen so slowly beneath their fierce grasp.  
"It is coming," they cry; "O days of fruition,  
Which hold in your heart the joys to be ours,  
Why tarry ye still? Thrilled with love and ambition,  
We faint with the perfume of unopened flowers."

Summer is with us! The visions of glory  
That lighted life's Spring with their glitter and glow,  
The flowers that whispered their passionate story,  
The fruit, rich and rare, which blushing hung low,  
"They are ours," cried the twain, "these treasures are ours,  
The dreams are made real, joys are ripened at last,  
But dimmed is the glory and fading the flowers,  
The fruit that we've tasted is withering fast."

Summer has vanished! It's white heat is over,  
In Autumn's dim haze life's shadows grow long,  
Gone is the fragrance of blossoming clover,  
Gone is the gladness that breaks into song,  
Louder and clearer while rocked in the river,  
That laves with its waters eternity's shore,  
Comes the voice they heard erst while with a shiver,  
"Earth's Summer," it said, "shall return never more."  
—Emily S. Bouton.

### By the Editor's Fireside.



THIS is a great pity that all who enter into the world to take part in the struggle for life's comforts and pleasures could not, each and every one, realize that the work which they undertake demands from them something more than the mere perfunctory performance. The way in which it is done means everything as to the future of the worker. It is not the work itself that is so important; it and its results may be comparatively fleeting, but the way of its accomplishing, the spirit

which has entered into the effort put forth, is the important thing.

Watch the workers that you see busied in daily tasks and observe the manner of doing. It is an easy thing to tell whether there is any interest beyond the mere finishing of the allotted tasks and the obtaining of the reward. The listless air, the preoccupied look tell the story.

All work should be done for the work's sake, and no matter how trifling it may seem, how like drudgery it is to the doer, how dull and uninteresting it seems as the future is looked forward to, still the best effort should be put into it which lies within the possibility of the worker to make.

It is not only a duty to the employer if it is done for wages, but it is a duty to oneself. Work into which there is nothing of courage, of strength, of self-denial, of enthusiasm, is work poorly done; and not only that, the worker has dwarfed his own powers of accomplishment. The great difference in conditions which are seen in any place where are many toilers lies almost wholly in this one thing—those who are at the head work for the work's sake. That is, they have a pride in the doing of what has to be done just as well as possible by using every effort that lies within themselves to make. Those who lag behind are usually they who work only to obtain the pay. Not that the first do not care for the reward; but there is to them a keen interest in excellent accomplishment. They are not satisfied with simple doing, but they have a pride in reaching higher than their fellows.

Let this, then, be a motto of all who labor either for themselves or for others: "For the Work's Sake," meaning that whatever is to be done and falls to one's lot to do shall contain in its accomplishment every effort that is needed for an approach to perfection so far as it is possible for the worker to put it forth.

\* \* \*

ONE IDEA is growing which will have a most important effect upon the health: not only the physical health, but I believe upon the mental and moral as well; that is, the habit of sleeping alone. Every child and every grown person should have a bed that may be only occupied by himself. Mothers would find many

times that their children would sleep much better and be far less fretful if they were allowed to sleep apart.

I know that homekeepers will be ready to exclaim against a thing which would entail the keeping of so many beds in order, and also that in case of a large family and small house it would be impossible. I am not talking about the possibility or impossibility of following out this sanitary law—I am only stating the law, leaving it to others to give obedience to it or not as they choose. I should like, however, to have the experiment tried, especially when one of the family is ailing. The invalid is frequently nervous and restless, perhaps feverish. The close proximity of another person in the bed and under the same clothing adds to this and prevents any change of place during the night hours. The well person will not only be kept awake by the restlessness of the other, but is liable to absorb the impurities from the body of the ailing one; or if not that, the restlessness will seem to be imparted and healthful sleep prevented. Doubtless this is owing to a law of animal magnetism which is not yet thoroughly understood.

This same law of magnetism has also force when two persons have about the same degree of health. One will be sure to absorb from the other, the former gaining strength, the latter losing. There is no doubt but this has caused the death of many persons whose trouble seemed to baffle the physicians. They simply wasted away without apparent cause, losing vitality day by day, or rather more truthfully, night by night, without any suspicion of the true cause coming to the minds of any.

The matter is beginning to be more thoroughly understood, and more and more people are buying single beds, even when two persons are to occupy the same room. It does not, after all, make so much more work as it seems, because the bed clothing of the single beds is much lighter and easier to handle, and in making them up a person can spread the clothing smoothly and nicely from one side of the bed without so many journeys to and fro, as must be made with the double one.

I know very many who read this will cry out against any such doctrine. Some will say that it may be true where persons do not love each other; but where they do, any bad results are impossible. Do not deceive yourselves. It is just as possible in the one case as the other. Nor will it, as some claim, diminish affection by passing the hours of the night separately. Remember this: Each individual person must have hours of solitude in order to adjust himself to circumstances. He is the better for being by himself in order to recover from the turmoils of the day. And I am sure that many a woman if allowed to speak for herself would say that she could rest much better if permitted to sleep away from both husband and children, even if in the same room. Especially would this be true when over-exhausted by the labors of the day.

The time is coming when this sanitary law will be better understood and acted upon than it is to-day.

\* \* \*

A VERY good suggestion is made in regard to Christmas presents. "Oh!" somebody exclaims, "why talk about that now when we are sweltering with the heat. Nobody can think of the holidays at this time." It does seem like forcing the season somewhat, and yet those of you who always find yourselves in a rush and worry at Christmas, and completely exhausted when it is over through working late at nights in order not to slight anybody, will appreciate this method of saving all that if you will only give it a trial. Commence with January, and each month of the year finish some one gift. That will not require any great amount of strength expended, but when the time draws near quite an array will have been gathered, and what remains to be done will not tax the energies to any undue extent. Then, too, there are many pretty things that can be made in the Summer time which would not be possible in the Winter. There are what we might call souvenir books. One of these which I saw was made of heavy drawing paper, upon each leaf of which was fastened a pressed flower, tied with strands of white silk; the leaves were fastened together by bows of heavy white ribbon, number seven in width. This was made by one who stayed at home and whose means were limited, though her heart was large enough to desire generous giving. Nothing that she could have offered could have been prettier. Under each flower a quotation may be written appropriate to the blossom and saying much to the recipient. Those who go away often have opportunities to collect pretty souvenirs of their travels that will suit their friends better than anything else. For instance, one who went up the Lakes brought home quantities of the sweet grass that grows there and made it into little sachets that were extremely dainty. A great many other things may be done if the matter is only thought of in season. And when it is considered that such gifts as these betoken a thought of the giver long months before Christmas time, it renders them of greater value than anything made just at the time, ~~except~~



cially if the fact should become known that it was done at the expense of needed rest.

Thoughts do not need the wings of words  
To fly to any goal.  
Like subtle lightnings, not like birds,  
They speed from soul to soul.

Hide in your heart a bitter thought,  
Still it has power to blight.  
Think Love, although you speak it not,  
It gives the world more light.

—Elta Wheeler Wilcox.

### WOMEN AT THE WORLD'S FAIR.

#### Some Notable People, and Interesting Facts in Regard to What they Are Doing.

Upon the Board of Lady Managers for the coming World's Fair is Mrs. McAdew, representing Montana. She is a notable woman in some respects, having accomplished things that are thought outside the line of woman's work. For years she has been prominent in the mining interests of that State, and has accumulated a large fortune by her ability in that direction. Not long ago she attended the Mining Congress, being sent thither as a delegate. She is the first woman who has ever occupied such a position. Besides being an authority upon mines and mining, she is a civil engineer of practical experience. Her special work in that line was the building of bridges and miles of excellent wagon roads where the construction was difficult. One would not think to look at Mrs. McAdew that she was so efficient in these ways that are so widely separated from those of the majority of women. Indeed, she is far enough from the typical strong-minded woman of the past, being young, beautiful, and exceedingly delicate in appearance. Her work on the Board is very valuable.

\* \* \*

Among other works of women for the Fair is promised a spectacular play to be presented inside the grounds of Jackson Park, providing permission can be obtained. The author is a Mrs. Littleton, of Nashville, Tenn. The play is entitled "Christopher Columbus," and the scene and action are as strongly historical in character as is possible. Washington Irving's idea of Columbus has been carried out. Mrs. Littleton's associate in the enterprise is Mrs. W. N. Linch, a member of the Board from West Virginia. These two women expect to build a theater complete, and carry it through to success or failure. The whole cost is estimated at \$300,000. Only think of a business enterprise of this kind, planned and executed by women! who a few years ago would have shrunk back in fear from anything involving even a small part of such a sum.

\* \* \*

Mrs. Potter Palmer is exceedingly anxious to have a good display of the work of Japanese and Chinese women. Japanese women have almost entire charge of the silk culture in the provinces of northern Japan, which is especially devoted to that work. Strange to say, while the women are thus occupied the men keep house and watch the children. In years past the women of that country have not been allowed to do anything in a way to make a separate exhibit feasible, so the Japanese Commissioner informed Mrs. Palmer, but the Government commission would make what they have done a part of the whole Japanese exhibit. Mrs. Palmer is urging that the wives of the Chinese exhibitors should be allowed to visit the United States freely, and in that way she hopes to arrange a display of the handiwork of Chinese women.

\* \* \*

A marked feature of the display in the Woman's Building will be that of the fine arts, such as sculpture, painting, designing, etc. Among those whose work will have a place there are Madam Berteaux, of Paris, the most distinguished living woman sculptor; Madam Breton, the eminent painter; Mrs. Candace Wheeler, of New York, who is generally acknowledged to be foremost among women in original decorative work; Mrs. Mary Hallock Foote and Miss Powell, who are known for their remarkable success in designing illustrations for books and wood engraving. These are only a few of the many who will be represented.

\* \* \*

A very fine collection will be shown in the Gallery of Honor of laces and embroideries, many of them those which were done in the far-away past and have been preserved to the present. Much of this fine work is still done, and the finest specimens will be shown. The countries that have already applied for representation in this department are Russia, Ireland, England, Italy, Belgium, Japan, India, Egypt, and many others. This of itself will be well worth a visit to the Fair.

### PICTURES AND FLOOR COVERINGS.

#### Some Hints about These Matters that May be Helpful to Those Who Contemplate Improving Appearances.

One of the most pleasant decorations of any home is the pictures which are hung upon the walls. A great deal of care is necessary not only in the choice but also in the way they are framed and hung. A few good ones are far better than many poor ones. This has been said so often as to be trite, and yet there seems to be a disposition many times to buy a number of cheap ones showily framed in order to make a display. One good oil painting is worth a great deal in the educational influence it has upon all who see it. The oil painting must always be

framed in gold, silver, or bronze to produce the best effect. The frame should never be flat, but always thicker at the outer edge in order to throw the picture as far back as possible to make the distance effective.

If a good painting is beyond obtaining, a fine etching or a photo-gravure of some good picture is a great deal better than a commonplace one in oil. Of course there are some pictures that are not very costly and yet which are thus painted. Those are flower, fruit, and still life. Water-color pictures are also very attractive if well done, but they need most careful hanging unless they belong to what are called the impressional school. They must have a strong light to bring them out well and to show their fineness of execution. Water colors should be framed in white and gold, while engravings and etchings need frames in natural wood, polished or varnished. The mat of the water color should be such as to bring out the delicate prevailing colors. For instance, a marine view where the water is of a greenish tint may have a mat of a pale sea-green tint.

In regard to the hanging of the pictures, the rule is given that the center should not be very much more than five feet from the floor. Large pictures, however, may hang a little higher and smaller ones a little lower.

A great deal of taste may be exercised in this matter. A picture, brilliant in its colors, placed near an etching or engraving will make both effective. Small pictures of very fine, delicate touches need to be placed where they can be closely examined. Many times a good picture is spoiled through lack of care in its placing with regard to the light; and especially is this true where the coloring is dark or in the case of etchings and water colors where a glass is placed over the picture. The best way to do when a new one is to be hung is to try it in different positions until the right one is found to bring out its lights and shadows.

Women with limited means are often puzzled to know how to cover their floors prettily and yet inexpensively. A very pretty way was suggested in *The Delineator* that only requires ingenuity and some work, the money that is needed for it being a comparatively small sum. The room described was covered first with the heaviest quality of jute; this, as all know, is the material used in making bags, and can be bought at any bag factory for a few cents per yard. If there is no bag factory near, then some merchant with whom you trade will be quite willing to send away and purchase it for you. This jute is of good width and has a very smooth and even surface. Measure your room and see which of the four widths in which it comes will lay to the best advantage, as you want to avoid cutting a width if possible. It comes 36, 40, 44, and 48 inches wide. When ready to make it, cut the number of widths required, overcast the ends so that they will not ravel, and sew the seams together upon the machine. Then press the seams flatly, and it is ready to lay upon the floor. Tack it down with furniture tacks or, what is much prettier, finish with small, brass-headed tacks. Turn the jute under once in order to make it firm.

The next thing is to decorate it, and here is where the real labor is to come in. Make the border of any width you require from six to 18 inches. Get several sheets of cardboard or of stiff paper, and upon one draw the pattern; then cut away with a sharp knife the parts of the pattern that are to be colored, then the inside of the leaves and flowers. Lay this pattern on the floor and with a brush paint the opening with the colors selected to correspond with the room. Care must be taken to match the corners exactly. Another thing must also be taken into consideration, and that is the number of times the pattern can be placed from corner to corner; a little planning will make this all right.

The paints used may be purchased by the pint or quart. Of course, in taking up the pattern to lay it down again, care must be taken not to move it so as to blur the outlines, but lift and place it carefully exactly where the other leaves off. Be careful to keep the stencil board free from the paint; probably new stencils will have to be made before the room is finished. A straight band a little distance from the border on each side adds to the effect, that next to the wall being made wider than the other.

A pretty rug upon the center of the room will then make a covering which is artistic and extremely pretty.

In the room described the same material was used for a wall decoration; but few will care to undertake this task. Jute may also be used for hangings in doorways, taking one wide breadth and ornamenting it with the stencil border top and bottom.

### WORK FOR BUSY FINGERS.

#### Household Decorations and Christmas Presents Which Can be Easily and Cheaply Made.

##### PRETTY CATCHALL.

Get a ginger jar and cover it over with putty about a quarter of an inch thick. Before it is dry press into it all sorts of odds and ends, little trinkets, buttons, shells, etc., until every part of it is filled. Set it away to dry and then varnish it over. Before the varnish is dry, put on a coat of lustrous paint; bronze or a dark green is pretty. Varnish again and then sprinkle over with metallic powder. This is very easily done and makes a very pretty little ornament.

##### TABLE OR STAND COVER.

Get a piece of linen that is checked off with red or blue lines; in every other square make stars with silk of some pretty shade, taking care that they are exactly even with the lines. If desired, these stars need not be worked all over the cover, but may be made so as to form figures in the corners or through the center, with a border worked according to the taste of the worker. A pretty edge is of either torchon lace or of one of the fine crocheted laces that can be done at home and that are so effective.



## BALL CUSHIONS.

Some very convenient articles for a bedroom, or in fact for a library, where one desires to rest, are what are known as ball cushions. These are made in divisions like a melon. They should be stuffed with eiderdown in order to make them elastic as well as soft, and covered with some soft material. Then hang them up by a silk cord so that they can be seized at any time to be placed back of the head. Of course they must be near the lounge or lounging chair in order to be convenient, and they take the place of the head cushions upon the chairs. Small balls are made in the same way and are stuffed with cotton which has been filled with sachet powder. These are also hung by cords somewhere where the air moving in the room will swing them back and forth, and they fill the room with a pleasant fragrance. The perfume chosen should be one of the delicate kind, as many people are easily affected by an odor that is not agreeable to them.

## TABLE SCARF.

A pretty scarf to be used for a table upon which a large lamp stands is made as follows: Get one and a half yards of delicate pink or blue China crepe. Upon one end draw a pattern of some design that is close in effect, using silver thread for outlining it, or else a heavy silk, couching it down with a silver thread. Make the centers of the flowers of the jewels which can now be purchased at any fancy work establishment. Finish the ends with a broad hem and a trimming of small silk tassels dependent from its edge. This scarf is thrown around the base of the lamp and allowed to droop from the edge of the table.

## FAN PHOTOGRAPH HOLDER.

Take a plain black satin fan and decorate with vines in water colors, having them run from the edge downward, as shown in the illustration. Cut a section of cardboard of the shape of the fan, only deeper, and cover it with yellow silk upon which has been embroidered a spray of holly leaves and berries. Fasten this to the back of the fan, tacking it far enough below the top to hold the photograph, also at intervals along the top. Suspend by yellow ribbons tacked to the back and tied in a bow at the point of suspension. A fancy fan may be used instead of the plain ones, so that no decoration will be required.



FAN PHOTOGRAPH HOLDER.



LAMP SHADE.

## LAMP SHADE.

Make this lampshade of pink silk, the rose color. Cut the sections in half squares, as shown in figure. Along the bias edge lay four side plaits, two each side of the center, turned toward and meeting at the center. The other edges are trimmed with a ruffle of white silk lace. Attach the plaited edge of the sections to a band of pink ribbon upon which is sewed a full ruching of the same ribbon that joins under a bow at one side. A spider web, which may be bought ready for application, may be fastened on one section, or the sections may be painted or embroidered with forget-me-nots.

## For the Home Table.

## JELLIED VEAL.

Cut a knuckle of veal into three pieces. Boil it slowly until the meat will slip easily from the bones. Take out the liquor, remove the bones and chop the meat fine; season with spices or sweet herbs. Put back into the liquor and boil until almost dry. Turn into a mold and let it remain until the next day. Stir in the juice of a lemon just before taken from the fire. Garnish with parsley and thin pieces of lemon.

## BREAKFAST DISH.

Chop fine any little pieces of beefsteak or roast meat; add a tablespoonful of bread crumbs to every coffee cupful of meat; season with pepper and salt. Moisten with one egg and a little milk. Butter some small patty-pans and fill them two-thirds full. Bake until they are browned, then break an egg over each one and cook from three to five minutes. Remove from the pans carefully so as to retain their shape. If the pans are well buttered they will brown at the bottom nicely.

## CORNUCOPIAS.

Beat thoroughly together three eggs, one cupful of sugar, one cupful of flour,

two tablespoonfuls of cold water, and one teaspoonful of baking powder. Use one tablespoonful for each cornucopia, baking in a round form in a moderate oven. When a delicate brown, take out and while hot lap the edges together in the form of a cornucopia. Hold in shape or tie together with a piece of tape until cool. Fill when cold with whipped cream. This receipt makes 12.

## POTATO OMELET.

Boil and mash two pounds of potatoes. Beat smooth with three pints of milk. Beat together two tablespoonfuls of sugar with two eggs. Mix well with the potatoes. Bake in a buttered dish.

## SOFT MOLASSES CAKE.

One cupful of butter or lard, two cupfuls of molasses, two eggs, six tablespoonfuls of milk, either sour or sweet, sour preferred; one and one-half teaspoonfuls of soda, four and one-fourth cupfuls of flour, a little salt if lard is used; one teaspoonful of ginger, and other spices if liked.

## CORNSTARCH CAKE.

One cupful of butter, two cupfuls of sugar, one cupful of sweet milk, one cupful of cornstarch, two cupfuls of flour, the beaten whites of six eggs, and two tablespoonfuls of baking powder.

## FRUIT CAKE.

One cupful of butter, one cupful of molasses, one cupful of milk, three cupfuls of flour, one teaspoonful of soda, one pound of raisins, one pound of currants, one-half pound of citron, one teaspoonful each of cinnamon, cloves, and nutmeg.

## CRULLERS.

Two cupfuls of sugar, four eggs, piece of butter the size of an egg, one cupful of sour milk, one teaspoonful of soda. Add flour sufficient to roll out. Fry in hot lard.

## PUFF PUDDING.

One pint of flour, two teaspoonfuls of baking powder. Add enough milk to make of the consistency of white cake. Grease some cups, put in one tablespoonful of the mixture, then a tablespoonful of fruit. Cover with another tablespoonful of the mixture. Steam 20 minutes. To be eaten with any liquid sauce. It makes a very delicate and delicious dessert.

## QUEEN'S CAKE.

One pound of flour, one pound of sugar, one-half pound of butter, four eggs, one gill of wine, one pound of raisins, two nutmegs; rub together, butter, and sugar to a cream. Beat eggs separately, add the yolks, then the beaten whites and sifted flour alternately, then fruit, etc. Sift flour before weighing.

## Jamaica.

Yellow fever has never ranged in Jamaica since the days of "Tom Cringle's Log," and the principal fever doctor of the island can boast that he has never lost a patient from this cause; but when a military doctor mistakes a yellow fever case for delirium tremens, and to prevent repeating the error treats the next case of drink as yellow fever, fatal results are not surprising.

The climate of Jamaica presents every choice, from a malarial swamp to that of a breezy upland 7,500 feet above the sea. Certainly no one will select the first, and few will choose to live among the clouds, and where water exposed at night will be covered in the morning with enough ice to swear by; but between the tropical beach and blue mountain peak there are samples of climate to suit the fancy of the health-seeking patient or the pleasure-seeking excursionist.

For the invalid the climate of Jamaica has these great advantages. Sunset has none of the dangers of Italy, day is turned into night; but the temperature Winter and Summer undergoes no change, and the alternations of weather which are found so trying in Algiers, and even in lower Egypt, here are unknown, and a cloudy day or a strong wind are welcomed as a pleasant and refreshing relief from constant sunshine. Given ordinary caution in living, and precaution against exposure to the heat of the sun between 8 a. m. and 3 p. m., the risk to health in the West Indies is small, while immunity from the danger of night air and drafts, with their attendant colds and coughs, certainly counterbalances the chances of those illnesses, many of which are of man's own creation.—*The Nineteenth Century*.

## Some Valuable Statistics.

Every reader knows what absurd conclusions as to the social and moral condition of a country are often drawn from imperfect statistics, but Dr. William Duffield Robinson, physician for 10 years to the eastern penitentiary of Pennsylvania, has figured some facts down to a fine point. He declares that the sentence to the penitentiary may be taken as fairly representative of the total amount of crime prevailing in the entire district from which it receives prisoners, and that the extent of territory and period of time covered by the calculation make the deductions a fair index of the criminal phenomena of the whole country.

He argues that reformation is practicable from the fact that one-third of the criminals are between 20 and 25 years of age. He finds that men of 60 are about eight times as trustworthy as men of 25, or, to put it in another way, eight men who are criminals at 25 seven will be law-abiding citizens at 60. A terror of the law has brought about the reformation in most cases, he thinks.

It is true that an overwhelming majority of criminals are young, but does it follow that most of them reform as they grow older? Is it not likely that they die twice as fast as other men? His division of crimes as to the age when they are most common is very interesting. He concludes that personal assaults, including assault and battery in all forms, mayhem, poisoning, and sensual crimes are steadily on the increase, and forgery and counterfeiting on the decline.



## SHEEP AND WOOL.

## Shearings.

The size of the sheep should be gaged to suit the pastures.

When a sheepman finds occasion for grumbling it would be well to quit the business and try something else.

What is a good sheep? It all depends on what the sheep is wanted for and the man who takes care of it.

Does sheep raising pay? Yes; some men make sheep farming a big success. How do they do it? By learning the business and sticking to it.

Give the flock all the time it wants to get from one point to another. Don't hurry them. A fussy boy and a fool dog are a nuisance on a sheep farm.

A lamb a week old will begin to nibble clover leaves. It should be remembered that now is the time to provide ample winter supplies of food for the flock.

The man that practices cross-breeding of sheep to make a new and improved breed had better look around and see if he can't find the breed he wants already made.

There are still a few wool growers who are waiting to see if the growing of mutton won't play out. It is hoped that all such men are not holding their breath.

"Something for nothing" is as rare in sheep raising as anything else. Profits are earned, not accidents. The two greatest hindrances to sheep—politicians and parasites.

If the flock cannot be comfortably housed in the present accommodations, one of two things must be done; either make the sheds larger or reduce the size of the flock.

The farmer that has too many sheep complains that sheep spoil the pastures and cost more than they come to; he is handicapped on all sides, and liable to be busted wide open.

Try to understand the natural facilities of the farm and your own abilities for caring for the flock. This is the main secret of success with the lucky sheep keepers.

Don't try to starve a sheep to eat food it objects to. The sheep knows more about what it likes and dislikes than you do. It has more sense about its wants than it gets credit for.

The dog is the civilized "wolf in sheep's clothing." The damage done by this companion of man is a thousand times more serious to sheep raising than all the wild animals combined.

There is too much disposition to change the breed and character of the farm flock as a remedy for the depression that exists with some farmers. It is better to improve the management of the flock.

There are two ends to the sheep business—top and bottom. The top end is all quiet and serene, making money. The bottom is doing all the kicking, and wondering what ails the fellows who are quiet.

Good methods of farming and good methods of sheep keeping go side by side. They help each other and belong to each other; they must go together.

There is a mutual dependence between them.

Prof. Taylor, of the U. S. Department of Agriculture, in an address on some fruits for northern Virginia, urged the importance of studying the home of varieties to learn the peculiarities and best methods of cultivation and adaptation to profits. In sheep raising this is equally important and wholly neglected.

While the expense of transporting the products of the flock from the West to the markets of the East, which govern the Western prices, is so small, the importance and the advantages of raising sheep nearer to the Eastern markets becomes daily more apparent. The Eastern farmer can appreciate this, and will avail himself of the opportunity that lies at his own door.

Every flock of sheep should be divided into two or more lots. The stronger will domineer over the weaker members of the flock and crowd them from the feed and water. Some sheep eat faster than others, and the slower feeders are not sufficiently nourished. This is the case particularly with lambs if not separated from the main flock. The ewe lambs should be fed separately from the ram or wether lambs, as they are usually less vigorous and aggressive.

If there is to be a new ram used in the flock this fall the sooner it is placed on the farm the better. He will require time to recuperate from the change and to get used to the feed and surroundings. This new ram should be intelligently selected. Let no false economy allow the question of cheapness receive the least attention. A poor, feeble ram is so from some cause, and whatever it is you do not want to perpetuate it in your flock. Only a strong, vigorous ram should be used.

The indications are, and the 11th census will show, that there is a tendency from large flocks to smaller, just as in cattle that flocks are increasing on farms throughout the agricultural States. This would be regarded as a healthy condition of the sheep industry and of agricultural prosperity; and THE AMERICAN FARMER believes that such changes are taking place. The low price of cereals must suggest to farmers the importance of increasing flocks which have been and are still so remunerative and essential to increased fertility of the soil.

Winter will soon be here again, when special attention must be given to the flock. It would be well to prepare the yards, sheds, troughs, and racks for handling the flocks before winter storms begin. All fences, gates, fastenings, and fixtures should be looked after. If the water supplies and arrangements are not complete and sufficient, see to it that nothing is left undone along this line. Above all things, put things in the very cleanest possible condition. A nasty pool of water should not be allowed to exist about the premises on any account. If it cannot be drained out, then put a fence around it so the sheep cannot drink out of it. The fact that sheep will use filthy water, sometimes seem to prefer such, is no sign at all that nasty water is good for them. We know it is not, and they should not be permitted to use it. Cleanliness is next to Godliness in sheep husbandry.

## FACTS ABOUT SHODDY.

## A Comparison Under the McKinley Law and the Springer Bill.

The imports of shoddy, rags, waste, etc., according to the statistical manual of Census Agent S. N. D. North, for the year 1888, when the duty was 10 cents per pound, were 8,478,984 pounds. The McKinley law increased the duty on shoddy from 10 cents to 30 cents. United States Treasury statistics show that under the fiscal year of the McKinley Law ending June 30, 1892, there was only 87,925 pounds imported, a decrease of 99 per cent., showing that the McKinley law practically prohibited the importation of shoddy.

The Springer Bill reduces the duty on shoddy from 30 cents per pound to about two cents per pound. (The average foreign valuation of shoddy is seven cents.) If, in 1888, when wool prices were nearer the present level in Europe than at any intervening time, and when the duties were 10 cents per pound, there was over 8,000,000 pounds imported, it is fair to assume that a reduction of the duty on shoddy from the present prohibitory duty of 30 cents down to two cents, as is proposed by the Springer Bill, this country will be flooded with imports of shoddy. Based on the rate of consumption of shoddy in England, it is safe to estimate that the imports of shoddy under the Springer law would increase to about 50,000,000 pounds annually. It is well known that shoddy is made from rags, a large proportion of which are cast off and diseased germed clothing from the paupers of Europe. If this were not enough to justify the prohibitory duties of the McKinley law on shoddy, there should be sufficient justification for that law in the fact that every pound of shoddy imported displaces the amount of pure American wool contained in three pounds of unwashed wool. The amount of American wool that would be displaced by the encouragement which the Springer Bill offers for the imports of shoddy is a matter easily calculated.

## Sheep Register Notices.

The United States Merino Sheep Register, Vol. II, with the compliments of J. A. B. Walker, Enon Valley, Pa., has reached this office. One hundred and twenty flocks are represented. There are no more reliable sheep breeders in the United States than are here recorded.

By Wm. Cooper & Nephews, Galveston, Tex., is the *Sheepman's Guide*, containing all there is to be said about the advantages of sheep dipping. How to cure and prevent scab, keep the flock clean, and improve the wool clip, with other information useful and instructive to sheepmen generally. Free for the asking.

By the courtesy of Mr. Ernest Prentice, Secretary of the Suffolk Sheep Society, Stowmarket, England, we are in receipt of the sixth volume of this society's flock book. There are 2,274 rams recorded by the 133 flock owners of the society. It is a well gotten-up book of 238 pages without illustrations; well filled with the history of this breed of sheep, and the most careful records of the society.

## Origin of Scab.

A treatise sent out by a firm engaged in manufacturing a sheep dip for the cure of scab says: "The fact that the scab mite is indigenous to the districts lying to the southward of the heavy freezing line, which is as much the home of it as other forms of insect life, as, for instance, the chigger, chinch bug, seed tick, wood louse, etc., and at certain seasons of its existence the herbage and foliage afford both shelter and facilities for its propagation. \* \* \* That scab can be communicated by contact with unhealthy sheep, of course, no one will deny, and that it will be spread fast and far is only too evident; but that this is not the only way this pest makes headway is the point desired to be made."

The scab in sheep is caused by the *Acarus scabiei*, the species that belong to sheep. The *Acarus ovis* causes the itch in the human kind. The *Acarus* of another species causes the mange in dogs, etc. Of these there are endless varieties. Just why anyone should think the scab mite is indigenous to regions lying south of the freezing weather is erroneous, else all the sheep south of this hard weather line would be affected with scab, which we know is not true. No question can be entertained that the scab mite finds a more congenial home in a warm climate than in a colder, or that it is more difficult to eradicate. It may be that the mite has greater development and vitality in the southern climate than in a colder climate, and hence the conclusion above; but that the scab mite belongs to the situation like the chigger, mosquito, and the wood louse is sheer nonsense. The scab, like the foot rot, was imported from Europe. The scab was known to sheep raisers from the earliest times. The writers refer to this plague of sheep prior to the Christian era. The sheep of southern countries are as free from scab as the sheep of Iceland or northern Canada. It is curable in every and all countries, but the healthfulness of infected ranges is more difficult to correct in hot than in cold climates. Just how long the scab mite can live without its host—the sheep—in a warm region is not known. In a cold climate it is believed a severe freeze will kill it. A large amount of valuable information on scab and its treatment is given in "Animal Parasites on Sheep," by the Bureau of Animal Industry, U. S. Department of Agriculture, which should be a handbook with every sheep keeper. It has no nonsense about it. If it cost \$3 or \$4 it would be cheap. It only requires the asking to get it.

## A Sheep-Killing Dog 22 Miles From Home.

The following is well authenticated by a minister of the Gospel in Virginia: A dog was shot and killed in the act of destroying sheep. As it came from a County in which a dog law was carefully enforced, it wore a registered collar with the owner's name engraved on it. This enabled the tracing of the dog, and it was 22 miles from home and "was a strange dog in a strange land," but a sheep-killing dog, though having an unblemished character at his distant home.



## SHEEP BREEDING.

## Its Remarkable Development in the United States.

One hundred years ago sheep breeding, in its truest meaning, was hardly begun. There were some notable instances of awakened interest and some enterprising efforts in the direction of improvement in sheep and wool to meet the wants of a new nation. The genius of those times was equal to the demands, and about 50 years ago sheep breeding began to show a most promising future and expected permanency. These signs later on were fully verified, and when, as the results of the war, the sheep industry began to expand and develop, there was not a doubt in the minds of those who were familiar with the subject, that no industry was more permanent than wool growing. It is true that changes began to occur. It was found that wool growing was not so profitable as formerly; that the demand for other products and the profits of other crops were more satisfactory; consequently sheep were neglected and the wool industry neglected until it was found that the Western ranges were growing wool and the agricultural States were abandoning the keeping of flocks.

A new era in sheep culture was reached six years ago, which may be denominated the mutton era. This branch of sheep raising had hitherto been unimportant. The demand for mutton had been so limited, and the quality of sheep meat had so little character, that this product was not encouraged. By a most fortunate and wholly unexpected demand a fresh impetus was given to sheep breeding, and the culture of sheep on a higher scale was gratefully accepted by agriculturists and pastoral sheep husbandmen as well. It was a new departure from the former standards and systems of sheep keeping. Many errors were corrected, and for a time much confusion of necessity existed. It was discovered that the evolution was destined to be a revolution of all former plans and methods affecting breeding, feeding, management, and the principles of keeping sheep. Much that had been learned and prized had to be unlearned. The type of a wool sheep was a merino of low qualities for mutton.

The wrinkles of the skin, the excessive grease of the fleeces, the smallness of the carcass, the slowness of maturity, were not well suited to the purposes of flock growers in the West nor of sheep farmers in the East. And as 90 per cent. of sheep in the United States were of merino blood, and the highest type of a fine wool was of the type commonly raised in Vermont and usually known as the American Spanish merino, with undesirable mutton characteristics, a good deal of confusion arose as to what should be the coming sheep. This gave more importance to the British breeds of sheep which had heretofore received attention but not such judicious management as to give the best results. Farmers had not the general intelligence necessary on the subject. The merino sheep was exactly suited to the careless handling which prevailed throughout the country. These methods were not suited to the larger breeds of sheep; in fact, the larger breeds could not do what was demanded of

them under such treatment. Here again were new lessons to be studied, and they had to be learned.

With mutton sheep raising came new branches of the sheep industry. The raising of lambs, the breeding of sheep, the discovery that sheep could be sent from the ranges cheap enough and good enough to be fed on Eastern grain farms was a revelation. The transporting of ewes by railroad from the Pacific Coast to New Jersey farms for lamb mothers and the using of Western sheep—range sheep—for exporting to England was a new thing, and in time destined to revolutionize the whole industry in this country. Not only the sheep industry, but the agricultural prosperity of this country was made to feel the change and sympathize in the general prosperity of sheep raising.

This new era of sheep raising may well be termed the adjustment of sheep husbandry to farming, and must result in an unexampled period of agricultural prosperity to this country.

## Some Experiences on Dogs.

Some Virginia farmers make a dog law and live up to it in their own farm practice and with the full knowledge of their neighbors. One of these who keeps dogs himself agrees that anybody who finds his dogs off of his farm and alone may kill them, and that he shall kill any dogs he may find wandering alone on his farm.

Another one has a standing bargain with his hired men to pay a bounty of 50 cents on dog scalps killed on his own farm. This gentleman has a pair of trained bulldogs that kill every strange dog they find alone on the farm. He says they make quick and sure work with every dog they take hold of.

Another very enterprising, courteous, reasonable sheep raiser shoots every dog that prowls around his premises day or night. He makes it a rule to get the dogs before they get his sheep, and thus avoids the losses and annoyances formerly and usually experienced. He says his gun is his only safeguard against dogs.

Still another large sheep raiser has a shepherd with his sheep during the day, and keeps them in a yard at night that is inclosed with a wire picket fence five feet high, which is dog proof.

Some sheepmen practice the liberal, if not indiscriminate, feeding of poisoned meat to dogs that are known to spend their nights away from home.

The dog question in Virginia has been and is a serious one, but Virginia sheep raisers do not tamely submit to the possible circumstances. The benefits of a dog law in some Counties have been very marked and helpful to sheep farmers, and they do not propose to abandon such legislations.

## Fecundity of a Virginia Ewe.

The very best indication of healthfulness of sheep in Virginia is the vigorous vitality favoring the increase of the flock. At the Lynchburg (Va.) Farmers' Institute, in an experience meeting of flock owners, it was related that a ewe had twin lambs last January and again bore twin lambs in July. All lived and were doing finely. Several gentlemen testified to having seen this ewe and the four lambs following her.

## Comparison of Domestic and Foreign Wools.

There is a great lack of information in America as to the real value of foreign wools. The choice, selected Australian clips freed from tag locks, leg, and belly pieces, are about all of the merino wool that are largely imported to the United States. These correspond with the picked combing and delaine fleeces of Ohio, but are vastly superior to the bulk of the latter. The great majority of the wool sold and manufactured in Europe represents dirtier and greasier fleeces than those which are imported, and correspond more nearly in grease condition with the clip of the United States. Such wools can be scoured in unlimited quantities in London with the skirts and belly pieces off at 30 to 33 cents for fine, as against 60 to 66 cents in the United States for the same quality in like condition. Any slight decline in the London market would make it possible to undersell our own clip, just as a slight advance abroad would make American wools cheaper than foreign to American manufacturers. We are almost daily solicited to furnish quotations for foreign wool for comparison with American wool of the same kind, but as there are no two Nations that market their wools in the same condition, this is difficult. The only fair comparison is with scoured values, for foreign and American wools are so unlike in the fleece that no fair comparison can be made until both kinds are reduced to the same condition scoured. It is safe to say, and it cannot be successfully contradicted, that the scoured value of almost every grade of American wool is as near as may be double the scoured value of the same kind of wool in London, which is the principal wool market of the world. For the information of those who so frequently ask as to the effects of the Springer Bill, which in April passed the present House of Representatives, we would state that if that bill became a law, removing the McKinley duties upon wool, the effect would be to make the London price the American price, and the scoured value of merino wool in the United States under the Springer law would necessarily be reduced fully one-half of the present price in order to bring the American wool down to the present free trade London price. Wools have no value in the fleece except what scoured wool they yield. Fleece prices in America under the competition of free trade would be lowered and adjusted on the basis of scoured values in London, which market dominates the markets of the world, and where scoured wool is now as near as may be, only one-half, of the present American value for the same kinds.—Justice, Bateman & Co.

## The Good Results of a Dog Law in Virginia.

During the first years of the working of a dog law in Augusta County, Va., the interest in sheep was very general. Every farmer, both large and small, owned sheep. In some instances the flock numbered only five or six, but the aggregate was very large and the general results very satisfactory. The tax, by no means unreasonable or burdensome to dog owners, afforded a revenue sufficient

for paying all the losses of sheep by dogs, and an accrued surplus of some \$3,000, over and above all probable needs. This money was turned over to the common school fund, and the tax per capita on dogs was reduced one-half, which is still sufficient for indemnifying all losses.

Such beneficent results of a dog law in Virginia would encourage sheep raising in all parts of this country. It encourages the investment of capital; it affords the needed protection to small farmers who feel that their small losses are not worth making a fuss about, and it guarantees the safety of larger owners.

## The Future of Mutton in this Country.

There is some questionings as to making mutton a popular meat with the American people. It is certain that the disfavor of the mutton furnished a few years ago was not popular; that the present favor of mutton is due largely to the improved quality offered; that young, tender, luscious lamb mutton meets the epicurean taste, and will continue to be a luxury with good liveries. The people who will continue to favor lamb are of the sedentary and wealthier classes. Laboring people, who have good appetites and vigorous digestion, are fond of more mature and substantial meats. These hearty people will always buy good, tender, well-fattened mutton.

The hitherto extravagant use of the hog product by the people is giving way slowly before a higher culture that is found largely on the increase with the average farmer and working people.

## Kansas Sheep Breeders Annual Meeting.

Secretary Heath announces the annual meeting of Kansas Sheep Breeders and Wool Growers' Association will occur Sept. 13, at Topeka, in the club rooms of the Throop Hotel at 7:30 p. m., during the week of the State Fair.

THE AMERICAN FARMER suggests to sheep breeders the importance of more liberal views as to breeds of sheep than has hitherto been the rule at institutes, farmers' clubs and sheep conventions. Sheep, like breeds of horses and cattle, have to conform to conditions of farms and markets; they are the creatures of circumstances, and cannot be expected to conform to new and strange surroundings or to fill all the demands of the varied markets.

## Average Size of Flocks.

An authority in a valued exchange puts the average Ohio flock at 35 head; of the flocks of Michigan only 21. The wonder is what the 11th census will show on these things.

It is usual to look to the Southern States to find enormous slaughter of sheep and startling dog statistics, but Massachusetts has been reported, and without waiting to hear from other regions, we give that State the first premium on dogs. Massachusetts has 88,000 dogs and 45,000 sheep. \* \* \* The census gives the dogs a value of \$10 each. The United States Department of Agriculture gives the value of sheep per head under one year old, \$3.45; over one year old, \$4.03. If any body doubts whether intelligence and dogs lack affinity they need doubt no more.



## THE APIARY.

## Humming.

If fresh lime is scattered about the hive it will destroy ants.

People have not yet learned to use honey. When its many good qualities are understood it will take its deserved place as an article of food.

H. L. Jeffrey, of Woodbury, Ct., says that when the robber bees come around he puts a little dry wormwood in the smoker and they do not tarry long.

Zinc or galvanized iron should never under any circumstances be used for storing honey. Stone jars, tin tanks, or wooden barrels may be used, but some wood will taint the honey. Care should be taken not to have this kind.

The Guadalupe bees are interesting. They store their honey, not in combs, but in bladders of wax about the size of a pigeon's egg. The honey is of an oily consistency and does not harden, while the bees are black and of small size.

How to control swarms is the great unsolved problem in beekeeping. Automatic swarmers give some hope, though they fall far short of perfection. As yet no one can tell whether they will develop into a complete success or prove an utter failure.

Dr. Phelps, a noted writer, says "Honey in its purity is a God-given sweet, and its proper use is conducive to health and strength. Used frequently and in connection with other food, it has a tendency to produce pure blood and give tone to the human system."

After honey has been away from the bees for about 10 days examine the cappings closely, and if little pieces of white dust resembling flour are found, the worm of the wax moth is there, even though the places are not larger than the eye of a needle. If it is not destroyed it will destroy the cappings which incase the honey.

In 1879 the honey crop amounted to 25,000,000 pounds, or an average of about one-half pound for each inhabitant of the United States for the year. The value of this honey at an average of 10 cents per pound would be \$2,500,000, not counting the value of 2,220,000 pounds of wax, which is, of course, included in the weight of the honey.

The exact relation between the beekeeper and the fruit grower has never been determined; but it seems as if the two should be conducted together. If the fruit and flower grower does not own bees, he loses all the profit from the nectar, for someone else's bees will be sure to carry it off, while if he kept them himself they would store it up for him.

Sawdust that comes from making hand holes with a wobbling saw in beehives has been found by a correspondent to be superior to all other fuel for smokers. He had tried rotten wood, hard wood, pine sticks, sawdust, shavings, excelsior paper, rags, peat, and corn-cobs, and found it better than them all. The fine sawdust must be carefully sifted before using.

Some years ago Prof. H. W. Wiley, in the *Popular Science Monthly*, stated that an artificial comb might be prepared

for the reception of honey, and though he afterward explained that it was only a joke, thousands still believe it. There is really no such thing as artificial comb, and the bee is as indispensable for its production as the hen is for the production of eggs.

A good many flowers can often be found in cities. Bees usually thrive when kept in cities, and are sometimes found in the tops of buildings in the most thickly settled parts. The greatest trouble is apt to be the interference of neighbors who will complain and imagine themselves in constant danger of being stung. If bees are placed anywhere on the ground they should be where their path will not be crossed in leaving or returning from the hive.

Though movable frames have revolutionized beekeeping, someone writes that to the mass of farmers they have been more injurious than beneficial. This may have been the case among those who did not understand the use of them, and who were experienced in the use of the old straw or box hive; but for that matter, ignorance is generally injurious. Since the movable frames are known to be a great help and improvement, it is a narrow mind which would discourage their use for the reason named above.

In Summer the beekeeper should make ready for Winter by carefully preparing his hives. The bee cellars must be cleaned out, aired, and made fresh by disinfectants. Unclean hives breed disease, causing the bees to die out during Winter, which is the hardest time for them. But if the bees are Wintered properly and are carefully tended disease may be controlled. Today there are so many improvements in Summer and Winter hives, movable frames, and well protected bee cellars that the small insects ought to be happy all the year round.

C. H. Murray, in *Gleanings*, says: "From my observation I believe that bees treat one another at times for indisposition. You will sometimes see a bee, and often as many as three at once, going all over another and pushing and pressing it with their forefeet, as if they were administering a kind of massage treatment. It in the meantime will hold quiet and take the dose in best good nature. They are not cleaning it, but appear to be rubbing out its rheumatic pains. It reminds me sometimes of a barber shampooing a customer. No doubt many have observed the fact."

## "The Piping of the Queens."

EDITOR AMERICAN FARMER: To no out-door workers does Spring bring more anticipation and enjoyment than to the beekeeper, especially to the beekeeper whose beekeeping is his chief industry.

As the fields grow green and the trees bring forth leaves and buds, the time approaches when the first crop of honey is to be harvested and preparations are made to secure as much as possible. The colonies are fed a little every day—given a half pint of honey or sugar and water. This stimulates the queen and she increases her laying, and by the time the trees are in bloom a great force of bees is ready to bring in the honey—every successive crop, from the fruit trees to the late Fall flowering.

Not only is there a large force of

workers ready for the field, as result of feeding, if begun early enough, but also the brood chamber is filled with eggs and larva, so that when honey comes there is no place to put it except in the surplus chamber. Another comes from feeding. The colony grows rapidly, and as the warm days come the bees begin to show signs of swarming. This is the natural result. When honey comes from any source, either from the feeder in the top of the hive or from the fields, and the brood chamber in consequence becomes too small for the great family, the only relief is found in swarming; a part of the colony must go out to make room for the others.

The signs of swarming increase under the feeding impulse as the time approaches when any large crop is to be harvested. The buds are showing pink on the trees and a few have burst into bloom. The beekeeper knows that as soon as there is a general unfolding of petals the colonies will begin to swarm. If it is desired to have the colonies swarm naturally, the beekeeper is prepared to have the new colonies, but if no swarms are wanted naturally, then the colonies are made artificially; that is, two or three frames of brood and the clinging bees are taken from each colony to form a nucleus, sheets of foundation are placed in the old colonies, and the surplus chamber is thrown open.

Both operations, sometimes the latter alone, are sufficient to stay the swarming fever for a time, and sometimes if these precautions are taken no attempt will be made to swarm during the season; but many beekeepers believe that it is better for the bees if they swarm naturally and have their own way a little. This is good theory, but not always good practice. When any living creature is subject to man, the conditions are changed. If the conditions were natural, the bee, the cow, the horse, might have their own way and thrive, but the conditions are not natural, and disaster, even death, may result from allowing them to follow natural instincts. For example, if the cow or horse have access to the meal chest or corn bin, they may gorge themselves to death. Thus with all life, even bee life, subject to man. It cannot have its natural run unrestricted if man is to profit by it.

But let us look into a colony of bees that is to be allowed to swarm naturally. The preparations for the event are wonderfully interesting. When the new colony leaves the old the old queen goes with it usually, therefore a new queen must be provided for the colony left behind. The queen's eggs are deposited in the bottom of the cells, one in each. The egg looks like a bit of ivory about a sixteenth of an inch in length and as large around as an ordinary needle. As soon as the egg is deposited in the cell the worker bees, the nurses and feeders, place a drop of honey and pollen in the cell, so that the egg floats in it, and when the egg hatches the worm, or larva, begins to eat and grows rapidly.

This is the process of raising worker bees and drones, and the operation of raising a queen is similar, except that the food is different. The larva is given what is called "royal jelly." It is not known definitely what this is, except that it is finer food prepared by the bees,

perhaps by a process of semi-digestion. At all events, the egg of a queen produces a queen instead of a worker when this food is given. The workers are raised in common cells used before and afterward for honey or pollen, but for the queen a "royal cradle" is prepared. It is a cell enlarged, or often two or three cells turned into one "apartment," and when the time comes for the worm to change into an insect the cell is sealed up and is very much like a thimble in shape and appearance, and sometimes as large.

The bees ornament the outside of the cell and work over it until it is still more like a chased and engraved thimble. That there may be no mistake, a colony may raise 20 queens. Usually, however, all do not come out of the cells at the same time. Yet, sometimes, several queens will appear at once. It will be seen presently what a slaughter of queens ensues. The queen will come out of her cell in six or seven days after capping, and hence the colony must swarm before that time, for two queens cannot live together.

When the new queen comes forth, if the bees allow her to leave her cell, both the old queen and the new one appear to be immediately aware of the presence of the other, and then is heard the "piping of the queens," the note of challenge or defiance, and they give battle at once, and the quicker one stings the other to death. Sometimes both are stung, and in that case both die. But under some circumstances the bees prevent this. The queen cell is capped and the colony prepares to swarm. It would be interesting to know how the decision is reached—how one bee knows that he is to stay or to go.

But all preparations are made and the bees are ready. But sometimes bad weather continues several days, until the new queen is ready to leave her cell. She has already gnawed away a part of the capping of her cell; her piping is heard and is answered by the old queen. The bees understand what will happen if the two queens come together; therefore they confine the new queen in her cell, cementing down the cap of the cell again, and keeping watch that she does not gnaw out again, feeding her by thrusting their tongues through the cap. If there be a dozen queens ready to come out of their cells, all are treated the same way. The queens all pipe to each other, and the complication increases.

But at last the weather clears, the sun shines forth again, and the new colony goes out with a rush, taking the old queen with it, leaving the new queen in possession. If several queens now come forth or are ready to emerge from their cells at the same time, the first queen out tears open the other cells and stings the occupants to death. If two or more come out at the same time, they fight and continue till only one remains. Then peace reigns in the hive.—JULIA ALLYN.

Uniting weak colonies in the Fall is advised, even if it takes 20 weak ones to make one strong, flourishing colony, for this one will bring more profit the following year than the 20 weak colonies separately.



## NOTES ON BEES.

## Amateurs versus Professionals—Women as Beekeepers.

EDITOR AMERICAN FARMER: There is a vast difference between the amateur beekeeper and the real honey producer. The amateur supports his bees, while on the other hand the honey producer is supported by his bees. Amateur beekeeping can be made a nuisance and an injury to the hard-working producer. This is so when a rich man pays wages or establishes a system of hours for labor; for his example cannot be followed by those who cultivate the bee for profit rather than pleasure. It is also true when the amateur disposes of his surplus stock in the market for less than the ruling prices, thus forcing prices down below the cost of production. It is usually the manufacturer of apianian implements who does this, and yet he would be ready to resent it if his rival in business were to cut prices in such a way as to deprive him of his legitimate profits.

A field scarcely touched upon by women is that of beekeeping, and it is one that presents many inducements for the expenditure of her labor. It is a field not difficult of cultivation, and yet has every possibility of a fair remuneration and promises a certainty of independence.

The prevalent impression that beekeeping is a necessary adjunct to the farm is erroneous; both industries often suffer by combination. As a rule, the absence of bees from the farm is an advantage. If a woman has the talent and ambition, here is a field for its exercise and a test of its quality. Then, too, think of the outdoor exercise and the sting of the frolicsome bee. Oh, yes, by all means it is woman's work.

\* \* \* \* \*

Miss Julia Allyn is a bright newspaper writer who knows how to express herself interestingly and succinctly. Some of her articles in THE AMERICAN FARMER many beekeepers will read and find occasion to refer to hereafter. What she does not know about the inner circle of a hive is hardly worth mentioning.

In Miss Allyn's idea of dead air space and double-walled hives, which she considers as being expensive and beyond the purse of beekeepers of moderate means, she says: "The cost of double-walled hives is sufficient objection to their use. The time of costly hives is past as far as practical beekeeping is concerned." In this we have decidedly different opinions, but then we all think our way the best.

It looks as if Miss Allyn is in the secrets of any number of beekeeping problems, which I hope she will continue to confide to the readers of THE AMERICAN FARMER. She lightens her instruction and makes her articles attractive, whether one is reading for amusement or information, and THE AMERICAN FARMER's readers are fortunate in having an opportunity to sample her facts and fine humor.—J. W. TEFFT, Buffalo, N. Y.

## THE HARVEST.

## The Outlook not Encouraging in Some Localities.

EDITOR AMERICAN FARMER: The harvest of honey is not completed, but if any were gathered, some must be ready for market. In some parts of the country the crop has been very light, if reports in the papers are reliable, while in other parts an average amount of nectar has been obtained.

If the apiary produces comb honey, it is better to sell near home, if possible; and unless the product is very large, it is possible, usually, if a little effort be made. There is great waste and expense in shipping comb honey. If a single cell is broken on a top tier, all below may be made unfit for sale. At all events, when exposed for sale it soon becomes unsalable by accumulations of dust and by the inroads of flies and other insects, even bees, for bees in the Fall of the year do wander in the city streets, playing the scavenger in the backyard of the grocer's shop where are empty sugar barrels. The bee often enters by the front door, too, for any sweets in sight.

Extracted honey is the honey to sell. It sells for less than comb honey, it is true; but a colony of bees may gather twice as much extracted honey as comb honey. The beginner fears the process of extracting honey, but it is simple and easy after the beginner's confidence is reached and the task is not dreaded.

Extracted honey of different shades is often seen in the market from a very light to a very dark. Experience shows that buyers shun the very light and the very dark, and buys a medium shade. Buyers may think, generally, as one did, that all pure honey is always of the same color, and that all of different shade are imitations. The honey, as the bee collects it, is of different shades, and to make all of uniform color, all extracted honey should be mixed. The light basswood honey and the clover honey mixed with the dark buckwheat and chestnut honey make a "rich honey color."

The mixing should be done when the honey is extracted. Let all the honey run together and stand awhile and then bottle. Put the honey in white glass jars with wide mouths, so attractive that they will be bought, as such bottles have been often, for their merit to use, after the honey is gone, for preserves.

Honey offered in this way has been sold for 50 cents a pound. This gave a good profit on the honey and on the jar. Do not buy the glass bottles that have a beehive blown in the glass. They are good for honey, but not for the preserves that may go into them after the honey is consumed. Do not paste on the bottle a big label in any colored ink "Pure Honey" and other particulars, but use a label, gold letters on white paper (they cost very little), bearing the word "honey" and the producer's name and address.

This neat label on the white jar, and the darker golden color of the honey, make an attractive package, and will sell at almost any reasonable price, while the honey in green glass pickle jars at 10 cents a pound may go at last to the vinegar manufacturer. This attention to a few details pays.

Do not be in a hurry to sell honey. Do not send it to a distant market to be sold for what it will bring, as has been done often. That leaves it open for the seller to bring very little to the producer. Let the beekeeper go to the market, the nearest, with a sample of the honey to be sold, and make a definite bargain and then follow it up.

If anyone has anything worth selling, it pays to make a business of selling. Some beekeepers appear to be afraid that someone will find out that they have honey to sell. If anyone is ashamed of the business, then it is time to change it. Let me repeat that it does pay "to go into the glass-jar business to sell honey," as has been proved by experience.

I was in a store in New York when a woman entered and inquired for honey. On a shelf were four jars labeled with merely the word honey in gold or gilt on white paper with a gold band around the edge. These jars were unlike anything I ever saw before or have seen since. They were round, about 10 inches high, about three inches in diameter, with a fancy glass stopper. They appeared like glass cylinders and very attractive. The honey was of such a color that I had doubts of its genuineness, but it did not interest the buyer so much as the jars. I heard her say to her companion, "Wouldn't preserves look well in those jars?" The price was \$1.25 a jar, and the customer ordered them all sent to her house.

That episode gave me my idea of the fancy honey package in white glass jars. Of course the buyers of such packages are few in number, comparatively, and yet in the large cities in stores devoted to such customers there are many of them, and, as I have said already, it pays to prepare for just such customers.—JULIA ALLYN.

## Crossing Bees.

An article written by J. Edward Giles on the subject of producing a larger race of bees proposes that we cross our present race with the giant bees of India, and in this way procure a race of larger size. If in turn this new race should be crossed with the South American stingless bees the result would be a stingless race.

Mr. Giles thinks the improvement in bees would be worth an experiment by the Agricultural Department, and the expense would be slight compared to the benefits which might accrue. There might be, it is true, individuals who are both willing and competent to do the work, but without means to carry it out, for a study of the habits of the stingless race would be necessary, and this would require a residence in South America of perhaps a year or two.

Since the chief objection to bees is their sting, the bee industry would undoubtedly be many times increased if that objection were removed and we could have stingless bees.

## Honeycomb.

Honey is not a production of bees. They do not manufacture it, but only gather it. The comb, however, is a secretion of the bees. Honey is eaten and digested by them, and is converted into

thin scales of wax, which exude from between the rings of their bodies. These scales are taken up by the forceps of the bees and welded together. They work at this in large clusters, and their number is sufficient to produce heat enough to soften the pliant wax, so that it may be put together without showing any seams. They work in the dark, and if the light shines through their windows they will build their comb up to exclude as much light as possible.

## Rainy Day Interference.

EDITOR AMERICAN FARMER: It is natural that some farmer beekeepers, when the weather is dull and they cannot work in the fields at their regular tasks, should go into the apiary among the bees and do a little work there to see how the bees are getting along, and procure a little honey for market or for home use.

Experience shows that it is the worst time to meddle with bees. All mankind and all animal kind are affected by the weather, and are less cheerful, less comfortable, apparently, in dull weather than when the sun shines and the atmosphere is clear and bracing. The atmosphere is heavy, damp, perhaps, and the fog hangs in the lowlands. All life is depressed and inclined to be "out of sorts." It is true of bees.

The gentlest colony will rise up to protest if visited on dull, sultry days. They are in no mood to receive company, and they resent its interference. Of course smoke will subdue them, almost stifle them, more so than on a bright day, but it is better to let them alone at such times.

The time to work over bees is when a great part of the colony is in the fields. On a dull, rainy, foggy day all are at home, and it may be that they have special home work to do on such days and do not wish to be disturbed. At all events, experience shows that if bees are molested on dull days stings will be thrust home in spite of clouds of smoke. In such weather, which is sometimes called "sticky," there is nothing that sticks more closely than an enraged bee. If a colony is weak and helpless, and does not dare to assert its independence, it may be docile under rainy-day manipulation, but when the colony is a strong and fighting one, let the beekeeper beware how he interferes unless he is encased in armor and is sting proof.—JULIA ALLYN.

## Oats Drilled and Sown Broadcast.

An experiment was tried a year ago at the Rhode Island Agricultural Station to compare broadcast and drill seeding. This year the same was repeated. Every plot was divided; the north half being sown broadcast and the south half with an Empire grain drill. The same amount of seed was used in each case. It resulted in the broadcast oats coming up first and making a slightly better appearance all through the season, but at harvest it showed an increase of only 37 pounds per acre over the drilled oats.

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## THE GARDEN.

## Vegetable Poetry.

Potatoes came from far Virginia;  
 Parsley was sent us from Sardinia;  
 French beans, low growing on the earth,  
 To distant India trace their birth;  
 But scarlet runners, gay and tall,  
 That climb upon our garden wall—  
 A cheerful sight to all around—  
 In South America were found.  
 The onion traveled here from Spain;  
 The leek from Switzerland we gain,  
 Garlic from Sicily obtains,  
 Spinach in far Syria grows;  
 Two hundred years ago or more  
 Brazil the artichoke sent o'er,  
 And southern Europe's sea-coast shore  
 Beet-root on us bestows.  
 When 'Lisbeth was reigning here  
 Peas came from Holland, and were dear,  
 The south of Europe lays its claim  
 To beans, but some from Egypt came.  
 The radishes, both thin and stout,  
 Natives of China are, no doubt;  
 But turnips, carrots, and sea kale,  
 With celery, so crisp and pale,  
 Are products of our own fair land;  
 And cabbages—a goodly tribe  
 Which abler pens might well describe—  
 Are also ours, I understand.

## Pluckings.

It is necessary to handle sweet potatoes carefully when harvesting if you wish them to keep through the Winter.

A writer to the *Rural New Yorker* says: "I have planted the White Star potato for years and have never changed seed. I dig more bushels per acre now than when I obtained the first of this excellent variety."

Persian insect powder (pyrethrum or buhach) is said to be excellent for cabbage worms. It is not so cheap as some other remedies, but very little sprinkled into each head will be found harmless and effective.

Strawberry beds should have hand weeding and the ground between the rows should be cultivated that the runners may have a loose soil. The time to weed is just after a rain, when the ground is soft.

English farmers place their greatest dependence on their root crops, while in America farmers are content with only a few acres of root crops. An English farm of 1,200 acres had 200 acres devoted entirely to roots.

When the strawberry root grub has found its way among the roots of the plants it is very difficult to eradicate. It should be dug from about the plants when they are seen to be infested. The pouring of kerosene emulsion over the roots is said to reach them and give good results.

The turnip fly is injurious to newly-sown turnips and rutabagas. A recommended remedy is plaster and salt sown in equal proportions on the crop. When the seed is sown in drills the best way is to drill the plaster and salt directly over the seed before it breaks through the ground.

According to the report, the acreage devoted to potatoes is returned at 94.2 per cent. of last year's large crop. The breadth of cotton has been shortened in the South and the area given to the potato crop, but there is a large decrease in the New England and Western States, where the bulk of the crop is grown.

Montana grows the finest potatoes. They reach an enormous size, and often weigh four or five pounds each. They are noted for their unusual mealiness. When the skins of the smaller ones are broken the flesh sifts out like flour. They

can be cultivated in all the valleys east of the Rockies, and there ought to be no lack of them.

Turnips do well grown in the corn-field if kept free of weeds. Early in September the demand which the corn makes on the soil is withheld, and if the turnips are not there to take up the surplus plant food in the ground it is wasted. Turnips are very hardy, and make the most of their growth after the corn has stopped growing.

The question has been asked, "Can potatoes and tomatoes be grafted together and bear a double crop?" Such an experiment has been tried, and the plants thus grafted were made to bear potatoes below ground and tomatoes above, but the idea is almost too fanciful. It is safe to say that this can never be done for profit, though it may be occasionally done as a curiosity.

In packing cabbages for shipment, pack as solid as possible to prevent shaking and bruising. If barrels are used fill them closely and tightly; round the top up well, and use a clean cover. The barrel should have a number of holes cut in the sides for ventilation. The barrels and barrel crates should be of standard size, which is 12x22x36. Only good, sound heads of cabbages should be packed, and enough of the outside leaves left on them to protect them.

We have been importing immense quantities of beans and peas when there is no reason why we should not grow sufficient supplies of these vegetables for ourselves. It is a crop easily cultivated and adapted to our soil, and should be allowed to take the place of the over-production in other things. We over-produce the great staples. Some of the land thus used should be given to growing beans, that we might have a supply for ourselves and enough to spare for our neighbors who wish to buy.

## Fertilizers for Potatoes.

The Kentucky Experiment Station last season tested raising early potatoes on different kinds of fertilizer. The potatoes were planted on tenth acre plats. Nitrate of soda, 160 pounds; boneblack, 320 pounds, and muriate of potash, 160 pounds, were used singly, two by two, and all three combined. The largest total yield, 210 bushels per acre, was where the three materials were used together; the next largest where muriate of potash and superphosphate were used together. Potash greatly increased the yield, while phosphoric acid and nitrogen had some beneficial effects. The largest net profit was with the use of muriate of potash alone.

## Spots on Celery Leaf.

Celery leaf spots were found by the New Jersey Station in 1891, to be a species of fungus which Dr. Halstead calls by the highly unpronounceable name of *Phyllosticta apii*. It begins to show as a dull, brown patch, appearing, perhaps, in only one place, but continuing to enlarge until the whole becomes brown and lifeless. The fungus grows rapidly, and is fond of shade and moisture. It usually attacks the younger or lower leaves first. The remedy used for the ordinary leaf blight would probably answer for this.

## Yellow Rust.

The worst enemy of the gooseberry is mildew, but it has another, which is yellow rust. It has appeared this year in the form of little orange-colored spots on the leaves of the bushes. It is said to be a fungus or parasitic plant. The yellow spots are made up of the spore-producing parts of the fungus. They weaken the plant by attacking the leaves, even if the fruit is not affected. The history of this fungus has not been entirely understood as yet, but it is thought that it will not spread from these clusters. Those who have suffered from it this year must spray early in the Spring, as soon as the leaves appear, with some one of the copper solutions, and continue it at intervals for five or six weeks.

## A Strawberry Enemy

The strawberry-root borer is a small caterpillar about one-half inch long. It is a reddish-pink, shading down to a dull yellow on the second and third segments. It eats irregular channels and tunnels in all directions, and matures in June, turning into a small, reddish-brown chrysalis. The moth escapes early in July; this is very small, dark gray in color, and has a few dark spots and streaks on its fore wings. The moth lays in August and caterpillars soon hatch, which burrow into the heart of the plant for the Winter and reappear in the Spring to resume operations.

## Marketing.

Every kind of vegetable should be carefully packed, graded, and washed before leaving the truck farm. Some farmers do not realize how much depends upon the external appearance of their goods. Turnips ought to be trimmed with knives and their tops cut evenly; and potatoes and other roots should be washed and cleansed until their skins shine. To some truck farmers, packing and marketing is of as much importance as the sowing of the seed, and they are the men whose goods find ready sale.

## To Market Celery.

Celery is now marketed in water-tight boxes or crates, and can be kept at least a week, even in warm weather. This is how it is done. The plants are pulled up, the earth is shaken from the roots and the roots left on the plants. The plants are then stripped of wilted stalks, and after being cleanly washed and rinsed are placed on a table, where they are bunched and packed in the crates holding water. Some buyers will object to having the roots left on, but there is really an advantage in this. The crates are made to hold from two to two and a half dozen roots.

## Katydids and Cranberries.

Katydid is injurious to the cranberry crop. Prof. John B. Smith, of the New Jersey Experiment Station, in traveling through the cranberry section of that State, observed that caterpillars simply ate the grass, but on dissecting the katydids he found that they dine altogether off of cranberry seed. Their eggs are laid on the edge of the leaves and the insects eat the seeds, leaving the berry hollowed out inside.

## A Vegetable Little Known.

Broccoli is a hardy type of cauliflower, and could be grown to excellent advantage in some parts of the South, particularly on the coast of Virginia and North Carolina, in the thermal belt, where there are no extremes of temperature. It cannot be grown in Summer, so it is not suited to the Northern or Middle States. It grows extensively in Europe, where it can endure the Winters, and perfects its heads very early in the Spring when fresh vegetables are most wished for.

The seed must be sown in September, and must be given a deep, rich soil, like the rest of the cabbage family. It requires the same treatment as the cabbage, and will thrive in the same soil. The White Cape is the most profitable variety to grow, and of this there are many grades.

## Progress on Book Farming.

EDITOR AMERICAN FARMER: The oldest foggy who secured his experienced in farming by wrestling direct with Mother Earth and would sneer at book farmers, has long since come to the conclusion that the agricultural press gives more information to the farmer in a twelve-month than he picked up in all his years. And for one to start farming nowadays without reading it up, he might as well try to take a ship to sea without chart or compass, and with no prospect of finding another America. He has got to study how to keep his head level and from swelling, and remember that the laws of nature must be obeyed.

Parents in cities who have sons that are a little off, with a tendency to wildness, and think it a good place to turn them out to pasture on a farm, have found that they got into as much mischief as a bull would in a china shop. They have found that it is more economical to pay their board at a first-class hotel, and keep them punching ivory balls with a long stick over a cloth-covered table. This kind of material cannot be worked into a farmer. It requires their brightest and most intelligent sons for this purpose. It is quite the reverse with the farmer's sons who don't know enough to make good farmers. They go to cities and become converted into church, State, and trade affairs, and finally become millionaires.

To look at a copy of THE AMERICAN FARMER of 1819, and a copy of the one you now have, with a full day's good reading, the progress in book farming can be seen at a glance. The handsome pictures of men who are working our farm problems (this is no hayseed in their hair nor pants stuffed in boots); then there are charts which tell us when to lookout for rain, and the Fence-Corner, with illustrations of cause and effect. This is just making the old foggy's eyes bulge.—JOHN E. CREEK.

Our corn crop was not a failure this year, and the yield in Kansas and Nebraska must have been satisfactory. It is stated that in four months 24,000,000 bushels of corn have gone from Kansas and Nebraska through Eagle Pass, Tex., into Mexico.



## THE DAIRY.

## Skimmings.

Treat the cows well and they will stand by you.

The longer the cream is stirred the longer it takes to ripen.

It is a mistake to leave the cream become solid before churning.

The makers of dishonest goods are the greatest enemies of the dairy.

One way in which milk is tainted is because the person who does the milking fails to wash his hands.

The salability of butter depends greatly upon the manner in which it is put up by the person who makes it.

What the cows eat and drink may be of great importance, but the sanitary conditions under which we keep our cows is almost as equally important.

It probably will not hurt to reiterate that the making of fine, wholesome milk cannot be carried on with a stable full of the escaping ammonia from the manure pile or ditch.

We often have heard people say that it is impossible to keep a stable free from smell. This is not so. If a stable is properly ventilated and cleaned with precision there will be no foul odors.

We heard a dairyman say the other day that the best herd of dairy cows he ever had were the ones which he had bred and raised himself. There is enough in this short statement to cause some dairymen to ponder.

If you have plenty of apples give some of them to the cows. There are plenty of rotten and gnarled fruit which can be thus profitably disposed of. The result will be shown in the increased quantity of milk and butter.

"Experience is everything," recently said a well-known dairyman. He must be somewhere near right. A creamery in Kansas was forced to close business—no money in it, so the President said—but a man with experience got hold of it and he is having good success.

We leave it for our readers to judge why it is that in many communities the butter factory plan is entirely successful, and that the longer it is tried the more the work of the farmers of the community become adapted to it and the more prosperous are its patrons, while in other places the case is reversed.

A good many potatoes were dug up this year, and many of them are more or less affected by the rot. The question arises as to how to dispose of them. Whatever you may decide to do with them, do not feed to the cows. They are not the best of food for the cows, and if rotten they will injure the milk.

From an experience of some years ago, says Joshua Wheeler, we found cornmeal at \$1 per 100 pounds was cheaper and better feed for milch cows than oil-cake meal at the same price. To-day oil cake laid down at my railroad station is \$27 per ton. Corn is worth 32 cents per bushel. The price of a ton of cake would buy 85 bushels of corn, which would feed a steer 175 days. A ton of cake divided up into that many days makes a fraction less than 11½ pounds per day.

## SOME DAIRY FACTS.

## Two Experiments Which Will Probably Give More Knowledge to the Dairyman.

The yield of milk is more or less influenced by the quantity of food consumed. There are some foods which will produce a great quantity of milk, but with very little butter fat; then again there are some which will produce but a small quantity of milk, which is exceptionally rich in butter-making materials. There are also foods which no matter with what liberality they are given will produce but very little milk and a good deal of flesh.

In order to throw some light upon the subject, the Colorado Experiment Station undertook a series of careful experiments. In the feeding of the cows the ration was in the first period oat chop and alfalfa; second period, bran and alfalfa. In every case the latter ration gave the milk with the greater per cent. of fat.

From daily analyses and close observation it was ascertained to be a fact that a longer time is necessary for securing an even yield of butter fat from some cows than others. While with some the per cent. may be influenced by a change in the ration in 48 hours, and such cows become regular in that length of time, with others the per cent. is influenced, for better or worse, according to the quality of the ration, and grows regular in 64 to 72 hours, and still others (exceptions) requiring even more time. This is governed to a great extent by the appetite of the cow. Those animals that might be termed good feeders, and that will eat one ration with about the same relish as another, exhibit in the quality of the milk the results of a change in feed sooner, and in every case under observation, a steadier flow with more uniform per cent. of butter fat. Naturally, then, the shy or dainty feeder shows a greater variation in both quantity and quality.

In a second experiment the food materials consisted of linseed-oil meal, cornmeal, and wheat bran, with the first cutting of alfalfa and bright oat straw. Each kind of concentrated food was fed alone with one kind of rough stuff, except when the ration was changed to oilmeal, at which time some bran had to be added as an appetizer. The animals were given all they would consume without impairing their appetites. They were watched most carefully, fed according to their demands, and record kept.

In every case but one a ration of linseed-oil meal and oat straw produced the richest milk; in one case linseed-oil meal, bran, and lucerne gave the best results, with the oilmeal and oat straw ration a close second. The oilmeal, bran, and lucerne were second twice; the poorest milk was produced in four cases of Indian cornmeal and lucerne, and in two cases by wheat bran and lucerne. The widest variation in any one cow was 1.12 per cent. The cow—a nine-year old Jersey—gave four per cent. milk while eating daily six pounds of wheat bran and 21.1 of lucerne hay; she gave 5.12 per cent. milk when eating 4.4 pounds of linseed-oil meal and 7.1 of oat straw.

At the Minneapolis dairy school trials

were made as to the relative churnability of the milk from cows that had not advanced over six months in their period of lactation, and the milk from what are generally termed "strippers." The cream raised by the Cooley system required on an average 49 minutes to churn the cream from the strippers and 50 minutes the cream from the balance of the herd at an average temperature of 62 degrees. One churning from the herd milk on the 22d of March required 60 minutes to bring the butter. This was because the room was so cold that the temperature of the cream fell three degrees during the time it was being churned; but for this fact the average of the time required to churn the cream from the herd would have been a little less than that required for the stripper cream. Eliminating that churning, the average time required to churn the herd cream would be 48 minutes.

The average time required to churn the cream from the separator was only 20 minutes, not half the time required to churn the cream raised by the gravity process. It appears from this that cream from cows advanced in the period of lactation churns as quickly as does the cream from cows that are comparatively fresh.

## A Butter Making Country.

Consul Gardner, of Rotterdam, Holland, says that last year the United States sent Holland \$10,000,000 worth of margarine oil, or 70 per cent. of their (Holland) importations of that article, and out of this "and some other stuff" they sent 138,000,000 pounds of butter to England, Spain, France, and Belgium. Are the dairymen of Holland in their exhibit of dairy butter including this 138,000,000 pounds of imported oleo oil in the great exhibition of exported dairy butter? No wonder that Holland has become such a butter-making, not producing, country. We shall soon hear that some Hollander's cow had discounted Bisson's Belle by making a ton of butter in a year, says an exchange. And what is to hinder if the Chicago end of their dairy industry keeps up its milk-enriching exports? And yet some of the dairy papers are finding fault because the butter from Holland sells better in England than American butter.

## The Advantages of Late Corn.

Those dairymen who neglected to have a succession of sweet corn to supply the cows up to November have made a mistake. The corn serves as a connecting link. Before November the grass will be dead and no pasturage can be had. The supply of green food can then be kept up with sweet corn, supplemented with other food. Then when the corn is all gone the cow can be fed on a hay and grain ration. So few dairymen, however, plant this fodder to any extent that it cannot be counted upon as a general food to take the place of the dying grass. The cheaper the products of the dairy are produced the greater will be the profit for the owner. The cost of planting and gathering the late corn crops is small as compared with the cost of the food fed which the dairyman is obliged to use during the period when the sweet corn could be used.

## THE GRANGE.

## Assembly of the Priests of Demeter at Concord, N. H.

OFFICE OF THE ANNALIST, WASHINGTON, D. C., Aug. 24, 1892. The Assembly of the Priests of Demeter of the Order of the Patrons of Husbandry will confer the Seventh Degree, or Degree of Ceres, during the Twenty-sixth Session of the National Grange, to be convened at Concord, N. H., on Wednesday, Nov. 16, 1892. The work is assigned for Friday afternoon, 4 o'clock, and Friday evening, at 8 o'clock, Nov. 18. The ceremonies of conferring the Degree will take place in White's Opera House. Members who have received the Sixth Degree, or Degree of Flora, are entitled to this Degree, upon the payment of one dollar, accompanied with a certificate bearing name of applicant, residence, town, County, and State, and time and place of having received the Sixth Degree.

Applicants will carefully note the following. Who are entitled to the certificate:

First. The Seven Founders of the Order. Second. All those who have received the Seventh Degree heretofore and paid the fee. Third. All who have heretofore received the Degree and presented their application with fee.

Fourth. All those who make application, fee accompanying the same, and are accepted by the Assembly; no free certificates will be issued.

Fifth. The certificate is worthy of the high honor it represents, and as a work of art has no superior in its symbolic and emblematic instructions, and is worthy the home of any Patron.

Sixth. This will probably be the grandest Degree meeting ever held by the Assembly.

All applications for this Degree should be filed with N. J. Bachelder, East Andover, Merrimack County, N. H. Fraternally, LEONARD RHONE, High Priest.

JOHN TRIMBLE, Annalist.

## Notes from Far-away Lands.

The silk industry is beginning to make itself felt in New Zealand. The Government of that country proposes to establish the business in its northern districts.

The vintage in New South Wales is not up to the usual standard this year. Owing to detrimental causes it will be only two-thirds of what it was last year.

The growers of the banana in the Fiji Islands are puzzled over the appearance of a disease among the trees. The disease is destroying quite a number of the banana plants.

The tobacco plant has been introduced into Siam, and the Siamese are energetically at work cultivating it. We wonder if the natives are going to forsake the chewing of the betel nut for the weed.

The number of sheep in Ireland has increased wonderfully during the past year. There are now a million more sheep than there were in the Emerald Isle in 1889.

A drouth is prevailing in Australia. The natives do not think it so bad since it has been the means of killing many thousands of rabbits.

The duties on wheat, rye, and other meals have been reduced by the Government of Sweden. The inhabitants of that country cannot raise enough for their own supply, and since discretion is the better part of valor, it was deemed advisable to lower the duties on such things.

Last year New Zealand exported canned rabbits and rabbit skins to the value of \$950,000.

Pineapple culture is rapidly growing in the southern parts of Florida.



## THE ORCHARD.

### Cullings.

Any sudden increase in the fertility of pear trees is almost sure to cause blight.

The Seneca pear ripens soon after the Bartlett. It is large and of fine quality, though not so highly flavored.

Root pruning is good for a thrifty tree which refuses to bear. It checks growth and develops fruit buds, which is needed in such a case.

The Beurre Clairgeau is a pear which makes a fine show in market. It is apt to overbear, and its fruit should be thinned early in the season.

There has been a comparatively recent importation of Russian, Polish, and north German cherries and plums which may help to extend our limited fruit resources.

Pomace has no great value as a fertilizer, though it is used to some advantage as a top dressing for orchards. The seeds contain fertilizing matter and the tissues furnish humus which helps to keep the soil light.

The shortage in the apple crop is not confined to us. England's crop is reported very light. That of France is also light. Holland's crop is very small, and Germany has not nearly enough for her own use. Belgium alone has a good supply.

A grower in Arizona, six miles below Yuma, has 20 date palms in his garden. The largest of them is 15 years old and 30 feet high. Six of the oldest trees are bearing. It is said that one bunch contains about 2,500 dates and weighs 40 pounds.

The Bordeaux mixture will prevent rust from appearing on grapevines and preserve the bright green color of leaves until frost turns them brown. As the condition of the ripening wood depends largely on the leaves, the importance of healthy foliage will be readily seen.

Everywhere there is a general complaint about the failure of the fruit crop. A gentleman who has an orchard and vineyard in Indiana says his apple trees dropped all their leaves in June, and as they did not recover he ordered most of them cut down. His vineyard was also ruined by blights, rot, and mildew.

Always remember to gather every dead branch and twig which is cut off and burn them. Rubbish is never an advantage, but ashes will make good fertilizer. Old wood piles must not be left around near orchard trees. Do away with fallen fruit, and there will be less complaint about curculio and codling moth, which are sure to mature within them.

Apples will keep their freshness and will not decay if kept uniformly cool, and not more than 2° or 3° above the freezing point. One way which has been strongly recommended is to imbed them in entirely dry sand by filling the bottom of the barrel in which they are to be packed with about two inches of sand on which is placed a layer of apples, and so on alternately until the barrel is filled, finishing with sand. None but the best and soundest apples should be selected for keeping.

### How to Protect Peach Buds.

Many experiments have been tried in order to find a way of protecting the fruit buds of the peach from injury during the Winter's cold; and many materials have been used as coverings for the trees in an upright position, but without success.

The Hatch Experiment Station has for the past four seasons tested the bending over of trees. In November or early in December the earth has been loosened on the north or south sides and the trees laid over on the ground. Some of them were protected with very light material (heavy covering proved a failure), and some were left unprotected. The result of the final experiment was only 20 per cent. of protected buds killed and 81 per cent. of the unprotected. Many of the trees treated in this way were over 10 years old. They are easily set up in the Spring and grow well. If during the Summer the roots on the north and south sides are cut off, the growth will then be forced into the roots on the east and west sides, and when the tree is bent they will simply be wrenched a little. On account of the sun the trees should always be bent toward the south. Any light covering may be used for protection. Thin coarse mats from straw hat manufacturing have given the best results. No covering is needed on the ground under the branches, as it would take away the moisture of the soil. If the soil is in turf the trees must be sprayed to keep field mice away, and the loosened soil must be pressed firmly back into place and mounded over the upturned roots and base of trunk for protection.

### Summer Pruning.

The old idea of Summer pruning of the grape was to cut away the leaves and branches that the sunlight might get through and ripen the fruit. If this is done while the plant is growing its vitality is weakened, and more harm is done than if there was less sunlight. Pruning in the Summer should be to regulate the shape of the plants, for it can be done better then than at any other time, but it should be done very gradually, a little each Summer, mainly by pinching and disbudding. If slight pruning is done in Midsummer the fruit sometimes matures better, is increased in size, and the strength and vigor of the tree is sent into the fruit. Mark the branches that do not produce abundantly by tying white strings on them, then they can be attended to in the Fall or Spring, as preferred, and when more pruning is done these may be cut off instead of the productive branches.

### Growing Quinces.

A deep, strong soil and good drainage are necessary for the success of quinces. The subsoil plow should be run through at least 15 inches deep. The trees should be set eight feet from each other in the rows, and the rows 12 feet apart. Spring is the time to plant them. They need constant and rich fertilizing, and must be kept pruned so that they will branch low. Bordeaux mixture will prevent borers, preserve the foliage, and secure ripe fruit.

### Tropical Fruit.

In a letter from the South a writer speaks of the mango as the Florida peach. He says they are deliciously sweet and juicy, and at home are considered far ahead of any other fruit. Yet, when they are sent away to the Northern markets they are not appreciated and find no sale. He thinks people must live where they grow in order to learn to like them, for after they have been transported and kept a number of days they are not like the fresh, ripe fruit. The mango tree is one of the most ornamental of fruit trees and is a prolific bearer. The Arocado pear is also a wonderful tropical fruit. Its flavor is neither sweet nor acid, and it is about the same size and shape as the California pear. It is green or purple in color, and is eaten with salt like the muskmelon. It has inside a large bulb-like seed. Its tree is quite as ornamental as the mango, and bears great quantities of fruit.

### Pear-Eating Insect.

The Indian cetonian is an insect which injures ripe pears. It first appears in the Early Spring, flying harmlessly around in rather a harmless manner and feeding sometimes on the sap of trees. At its second appearance in the late Summer it gnaws holes in pears and often burrows in them, and frequently harms peaches and grapes. It has also been known to gnaw through ripe corn and ruin whole fields. A writer to the *Country Gentleman* suggests as a remedy shaking them from the trees or catching them in long-handled nets when they are flying about the trees.

### Pecan Culture.

Pecans make a profitable crop, and the largest "paper shelled" nuts bring very high prices. The trees will bear a little fruit in from eight to nine years, but a paying crop will not be produced before 10 or 15 years. The planting of the best nuts is almost a sure investment, and although they do not produce for so many years, the ground need not stand idle but can be planted with other crops until too much shaded by the trees, when it can be used as pasture land.

The pecan nut is little known abroad, so that there is no danger of overstocking the market.

### Chinese Peaches.

In 1879 an attache of the Russian Legation at Peking sent to the Arnold Arboretum seeds of trees and shrubs which were gathered on the mountains near the Chinese Capital. Among them was a package of peach stones labeled, "Cultivated peaches growing wild." These seeds were planted the following Spring, and have been flowering since 1886 most profusely. The flowers are about the size and color of many cultivated peach trees, and the fruit is thick skinned, free stoned, and has white, juicy flesh. It has not a particularly fine flavor, nor is it remarkably large in size; but it has great vigor and hardiness.

Since flower buds of peach trees are so often killed by frost in New England, making the crop uncertain, the *Garden and Forest* suggests that this Chinese

variety which has never been known to suffer should be used to give "vigor and hardiness to a new race of exceptionally hardy peaches."

The Pekin variety is thought also to be a descendant of the wild peach, which is believed to have come originally from northern China, being transported by way of India into Persia and other countries of the Orient, and from there to Europe and North America.

### Ants Protect Orchards.

Occasionally it has been said that ants have damaged crops, but this has been very seldom. A letter from London in *The Country Gentleman* says that the orchardists of Germany and Italy encourage the building of ant hills and let the small colonists act as a sort of police force for their fruit trees. The industrious little insects spend their time climbing up and down the limbs, which they cleanse from insects, both matured and otherwise. These they bring down and store away as booty. They are often seen devouring damaged fruit and eating their way to the heart of it, but they do not meddle with sound fruit.

Certain kinds of ants are even imported to China to rid the orange groves of a certain kind of worms which injure them, and in Florida the same means are sometimes resorted to. Ants have been known to vigorously attack canker worms and destroy them after hard struggles.

### Yellows.

Mr. Thomas Vincent, of Newark, N. J., considers that the disease yellows in peaches to be the effects of starvation. He owns a number of orchards, and has tried heavy fertilizing with bone dust and phosphates on trees that were affected. As a result, they were cured and made a strong, healthy growth. The experiment needs repetition to be successful, for sometimes trees are attacked and destroyed which are already growing in rich soil.

### A Plum Tree Experiment.

The wild goose plum requires another tree to fertilize its flowers. *The Country Gentleman* has cited an experiment which proves it. Before the war a gentleman in Georgia sent them a number of seedlings, which bore in a few years. One of them gave a good crop, and the others only partial crops. After a time, as they wished to retain only the productive tree, the others were removed, and the remaining trees which had before given such large crops of scarlet plums soon became unproductive.

### The Hillsdale Fair.

The 42d Hillsdale Fair will be held at Hillsdale, Mich., Oct. 3, closing Oct. 7. It will have a large exhibit from the Michigan Agricultural College. Much money has been expended on the track and grand stand extensions, while 60,000 shingles have been used this year on new buildings, and a large tent is being prepared as space for other exhibits.

When a man loses money at the races and catches cold into the bargain, we must not be surprised if he indulges in a little hoarse talk.





### Stable Talk.

New oats are too laxative for horses which do hard work.

The average farm horse would feel proud if he received but a small part of the care which is bestowed on a race-horse.

New hay is a good laxative for horses, but when this and new oats are fed to hard-working animals the result is apt to be disastrous.

Who ever heard of a steer weighing 5,000 pounds? Col. Singery, of the Philadelphia Record, is fattening a steer upon his farm which he expects to bring to the weight of 5,000 pounds by the time of the opening of the Columbian Fair.

Henry Wallace says: "Every day that my cattle do not gain in flesh I lose twice as much as that gain would be worth. As soon as the pastures fail to yield enough food to keep the animals growing rapidly other food should be supplied."

According to the London Live Stock Journal, during the first six months of the current year there were imported into Great Britain 247,347 head of cattle, or nearly 24,000 more than in the like period of 1891, but more than 62,000 below the number for the first half of 1890.

New oats are now on the market, and sell for more than the old ones. But when the truth is known, the difference in price between old and new oats is rarely ever equal to the difference in feeding value. In fact, if the new oats were dried through the Winter it would be found that they will shrink so as to make them dearest for the dry weight even now.

The farmer who looks on his farm and his stock merely as a means to make money, which he is reluctantly forced to stick to, will never find either pleasure or profit in his work. But the man who feels pride in his beasts and has a kindly feeling toward them, is sure to turn the commonest drudgery into a source of pleasure and make a good deal of money in the bargain.

Wyoming wants more ranchers. The Cheyenne Live Stock Journal put a good fact very neatly by saying: "Wyoming needs more small ranchmen who count cattle by the hundred and fewer corporations and barons who count theirs by the thousands. With ranges occupied by men with small holdings and Winter feed for their herds, the State

would profitably handle 300,000 cattle more than at present."

A Pierce County (Wis.) subscriber of the Farm Stock and Home says he has never found a remedy for heaves equal to a compound of eggs, honey, and vinegar. He beats three eggs into one quart of pure fruit vinegar, and after about three days, or when the mixture is well together, he adds one pound of strained honey. In tablespoonful doses it can be given with the feed twice a day or placed on the tongue of the horse.

### Shelter the Stock.

In the minds of some persons there are two ways in which the animal heat in stock can be maintained during the cold Winter months. One way, and the plan which is followed by all sensible men, is to erect shelter for them and make them comfortable. The other plan is typical of the shiftless and lazy man, and that is to let the animals breast the cold weather by giving them no shelter and by trying to overcome this deficiency by giving them heavy rations and feeding highly.

To make money economy must be practiced. How can we make any money when we do not shelter our stock and feed heavy to overcome this. There is no economy in the heavy feeding. The animals when they are exposed to the inclemency of the weather will eat more than if they were sheltered. Even with the large amount they eat this will not keep them in better condition than those which eat less and have been made comfortable and properly sheltered.

The question resolves itself into whether it is cheaper to feed heavy and give no shelter, or feed less with proper shelter. No one can dispute that the latter part of the question is the best. The adherents of this idea need have no fear that their convictions stand alone. Extensive experiments extending over several years decide uniformly that it pays better to put a shelter over the animals than attempt to keep up the spirits by high feeding.

Now, coming down to another question, is a shelter which is full of cracks, the roof of which does not fulfill its duty and which in other ways is in need of repairs, better than the open air for cattle? We take the stand that it is not. You may ask why so, and is not half a loaf better than none at all? While we admit that in some cases the proverb may be applicable, yet in this case it does not hold.

Drafts are productive of disease, and oftentimes of death in young animals.

If a human being remains in a place where there is a draft, is not the consequence manifested by rheumatism or some other ailment? The same is the case with animals. Another thing is that the cattle inclosed in such a so-called shelter will eat barely less than those unsheltered during the Winter. So it will be seen that Wintering stock in quarters of this kind is poor economy.

You now have leisure time on your hands. Why not make use of it, or some of it, by repairing your cattle barn, or building one which will insure warm and comfortable quarters for the animals during the cold weather? If you have wide, gaping cracks in the side of the building which you now use for that purpose, cover them with strips of wood. Make the roof water-proof, and your cattle will not only eat less, but will give you greater and better returns.

### Carrots for Horses.

Carrots work an unlimitable amount of good in horses during the Winter, and if you have a supply on hand the best way, or one of the best ways, to dispose of them is to give them to the horses. They regulate the animal's bowels and keep his system open. They also make his coat shiny. When any agent performs these functions in a horse, they cannot help but keep the animal in good condition. A queer fact seems to be that they possess qualities which no other root or vegetable has.

They may be what you would call an expensive food, yet taking into consideration the good which they do they are not so. Of course, the carrots need not be fed to the horse the same as you would give them a feed of corn on the ear. Give them two or three of the roots every day, or you can even give them this number every other day if your supply is limited. But if you have plenty of carrots give some of them to the horse.

### Pen Notes.

Sour swill is a hindrance rather than a help to growth.

A sow will generally give birth to her pigs in nearly 112 days from the time of service.

If you are feeding skim milk to shoats for fattening purposes, make a slop by adding cornmeal and middlings.

Do not wait until your hogs are big enough "to feed off." Begin with them when they are young, and the results will be far better.

Sows that are well along in farrow, should be kept to themselves. If they are allowed to run with the other animals there is a great danger.

For some time before the date of the appearance of the litter of pigs the sow should be provided with sloppy food, so as to keep her system cool and bowels open.

It is well to remember that a new-born pig is almost as sensitive to cold as a baby, and if once thoroughly chilled, gets a stay in his progress and prosperity that if not fatal is for a long time injurious.

The Durac, or Red Jersey, swine are said to be the best "bacon hogs." At nine or 10 months old they can be made

to attain a weight of from 200 to 300 pounds. They are hardy and not heavy feeders, and produce a large amount of lean meat.

The potatoes which are rotten can be used as food for the hogs. Cut out the rotten parts, burn or bury them, and feed the sound sections to the hogs, mixed with corn and oats or wheat bran. This makes a good feed to start hogs toward growing to a size and strength of digestion, when all corn ration may be fed with profit.

The prices which it is possible to obtain for hogs of a good quality in the markets should stir up farmers to produce such pork. The market is flooded with low-quality pork, and a good demand is for a higher quality of pork. If some farmers could but remember that on the good quality of the pig depends the value of the pork they would be able to raise the kind now in demand in the market.

It seems strange that farmers do not care about their hogs. They raise the same kind year in and year out, and seem to be contented. They breed indiscriminately, and so long as they are rewarded with a litter of pigs they appear to be satisfied. These same farmers will visit a fair and look at the swine exhibited there. Certainly it is an incentive after seeing these to try and improve the condition of his own animals.

There are two ways of determining with much accuracy when the pigs are about to appear. One of these is the sow's restlessness and her industry in working with and carrying materials for a nest, though in some instances she may be doing this for two days before. The other is her giving clear milk on pressure of her teats. No matter what other signs fail, this one is sure: If she gives milk the pigs will soon be there to take it. If the sow is in good healthy condition, and has been judiciously fed during the preceding two weeks, this milk will be abundant, not too rich, and will agree with the pigs, giving them stamina from the start.

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AND

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### Cacklings.

A sickly fowl gives no profit in the poultry yard.

Watch out for sickness in the flock during the Fall.

Dampness is the cause of many of the diseases in the poultry yard.

Do not give the morning mash to the fowls in a sloppy condition.

It is not too early to start incubators for the early Spring broilers.

Cooked turnips make an excellent Winter feed for ducks and geese.

Tansy is said to be disliked by lice. Put it to some use in your henhouse.

A fowl may be forced to lay eggs and put on flesh, but it takes time in both cases.

It is well to remember that the taste and quality of an egg can be regulated by the food given.

Now is the time to begin looking after the turkeys if they are to be marketed this Winter.

Popcorn contains more nitrogen and phosphates than Indian corn, and is therefore more valuable as food.

Ducks are hardy animals, and are not so liable to diseases as are fowls. The percentage of deaths in a large flock is usually quite small.

While milk may be very beneficial to hogs, yet we see it stated that the returns do not equal one-half of those obtained by giving it to the poultry.

Some breeders think that a cross of a single-comb brown Leghorn upon Plymouth Rocks, Brahmas, or Wyandottes, for early broilers is unsurpassed.

According to Miss Fanny Field, a thousand pounds of capon meat can be grown much cheaper than you can grow the same weight of beef or pork.

Those who have not given their hens an evening feed of corn during the Summer had better do so now, since the effect of the cool nights is overbalanced by the heating qualities of the corn.

If you do not intend to give a general cleaning to the henhouse before the cold of Winter sets in, then kerosene the roosts and all niches carefully. This is the lazy's man's way, and the best plan would be to thoroughly clean the house.

If any farmers contemplate adding new blood to their stock they should by all means purchase the birds in the Fall. The fowls are in the best condition at this time of the year, and if they are put with the rest of the flock the best results will be obtained.

### Cleanliness in the Henhouse.

EDITOR AMERICAN FARMER: I am interested in poultry to some extent, and keep quite a number of the birds. I often read in papers about cleaning the henhouse, but I never took much stock in what I read. I deemed it to be of no importance, and was only agitated by writers who desired to fill up space. However, my views have undergone a great change, and I fully believe all that I once read on the subject, and which I foolishly passed by. It will probably interest your readers to know how I discovered my mistake.

I had a new house, which is not over six months old, and having nothing particular to do on one day recently I thought that it would be a good time to clean the house up. I do not want to give you an erroneous idea as to what I mean by cleaning up. Every day I take the droppings out of the house, but it is about once in every 365 days when I give my henhouse a renovation; that is, a whitewashing and general cleaning. In my opinion this was all that was necessary, and I labored under the impression that my henhouse and hens were free of vermin. With this impression in my mind it is easily explained why I did not pay any attention to what I read on the subject.

One day last week, however, I determined to clean the house. What possessed me to do this I cannot say, but anyway I determined to clean up the quarters. My roosts are all movable, and when I was detaching them I noticed on their ends what appeared to be a fine powder, the color of granite dust. Taking the poles out into the open air I examined the ends more carefully and discovered them to be full of creeping vermin. I rushed in my house and came back with a can full of kerosene oil. It did not take me long to saturate the ends of the roosts with this fluid. I removed the other roosts and found that they had an abundance of lice on their ends, and I subjected them to the same treatment I had given the first one.

Not satisfied with this I went into the house with the can and poured oil into every crack which I thought would form a secure hiding place for the vermin. I was not stingy in the use of the oil, and before I was through the house had the odor of petroleum. I took whitewash and smeared that everywhere. The nests were next subjected to inspection, but I could not discover the presence of the vermin. I did not care to run any risks, and dumped all the straw out in the yard and burned it. I splattered white-

wash and lime in the bottoms, put in tobacco stems and supplied fresh straw. I considered these measures heroic, and am now awaiting patiently to see if the lice will again congregate.—H. T. SEBRIGHT, De Kalb County, Mo.

[We are glad to hear that our correspondent has recognized his mistake. Certainly with the measures he has taken to exterminate the vermin he ought to be successful in clearing his house of them. He has neglected to say whether or not he has provided dust baths for the hens. We presume he has. If not he ought to in order to complete his work. The dust bath is to the hen exactly what the whitewash and kerosene were to the house.]

We will take advantage of this opportunity to urge our readers to give their henhouses a thorough cleaning before Winter sets in. The triumphal onward march of the lice will be checked, and from that moment their power and numbers will decrease. The work will be slight as compared with the beneficial results, and the fowls will be in a much better condition to go through the cold weather.]

### A Word About Capons.

A good many farmers are asking if it is profitable to caponize. The poultry journals have of late devoted considerable space to this subject, and are agitating it considerably. Like everything else, this is not so rosy as it is painted. In some sections of the country the table qualities possessed by capons are greatly appreciated, and as a result they obtain higher prices than the ordinary dressed poultry. Philadelphia, for instance, is known as the great capon center, and in a good many cities produce dealers advertise "Philadelphia capons." This is a misnomer. The fowls are caponized in those States surrounding the city and shipped there to market. From Philadelphia they are shipped to other cities, and hence the origin of the name. But this only applies to Philadelphia, and does not hold good in all cities. The farmer who goes to the trouble of caponizing his fowls should not be surprised if, when he sends them to his town market, they do not bring any more than the ordinary dressed fowl on sale at the mart. This is due to the fact that the people do not recognize the difference in table qualities between the two. It does not pay to cater these places with capons, neither is it profitable to ship them long distances, since the cost of transportation will amount to something, and then there is a likelihood of the flesh being unfit for consumption when the consignment reaches its destination.

If a home market can be established, and this should be the first thing the poultryman who caponizes would endeavor to do, then there is a good enough profit to warrant the continuation of the business of caponizing. If there is a distant market, calculate what the cost of transportation will be, and use your own judgment as to whether or not it would pay to ship such fowls. This is our advice to all who are seriously meditating about embarking in this branch of poultry raising.

### Take Care of the Poultry.

A hen will not produce 200 eggs—or even 150—a year unless she is well taken care of and fed properly. The ordinary hen will probably lay 120 eggs in the course of a year. The question comes up, Is it worth while to bestow extra care and attention to secure a difference of 30 eggs a year? We will dive into facts and see whether it is or not.

We will base our estimates on the fact that the farmer—taking a grand average—has a flock of 25 hens. This may be a very small number, yet it will doubtless be large enough to show our purpose. Take the difference in the number of eggs laid, which is, as we say, about 30, and multiply it by the number of hens in the flock. Twenty-five times 30 is 750. Dividing this by 12 we get 62½. Think of it! In a small flock there is a chance of 62½ dozen eggs being saved. This amount saved represents the year's work of six of the hens in the flock of 25. In other words, it would take 31 hens to lay as many eggs in a year as a flock of 25, well cared for, would.

We will not rest here, however. Taking the price of eggs the year around to be 15 cents a dozen, we would save on every flock of 25 hens \$9.37. But this is not all the saving. On most farms the feed costs nothing, and there is the price of that saved. Then again, where there are flocks of 50 or 100 the amount saved would be doubled or quadrupled.

Now we can ask: Do you think it would pay to give more care and attention to your hens? Ponder over it and see if it would not. We have taken the lowest of everything. A well-cared-for hen should lay nearer 200 than 150 eggs a year. Very rarely does a dunghill lay over 120 eggs when uncared for. And last, but not least, 15 cents per dozen is a low average to place for the price of the eggs. But at these figures just think, and perhaps you will devote more attention to your hens.

### Ducks for Eggs Only.

The demand for duck's eggs in cities is comparatively small, and although Pekin ducks are the best of layers, they would give but very little profit, if any at all, in the sale of their eggs. However, this limited demand for duck's eggs may be on account of their scarcity. But few farmers keep ducks, and those who do hardly ever think of putting the eggs on the market. In many farmers' households it is preferable to keep the duck's eggs for use, and place those of the poultry on the market. Certainly there is no reason in the world why eggs laid by these web-footed creatures should not find as ready a sale as those of the other denizens of the poultry yard.

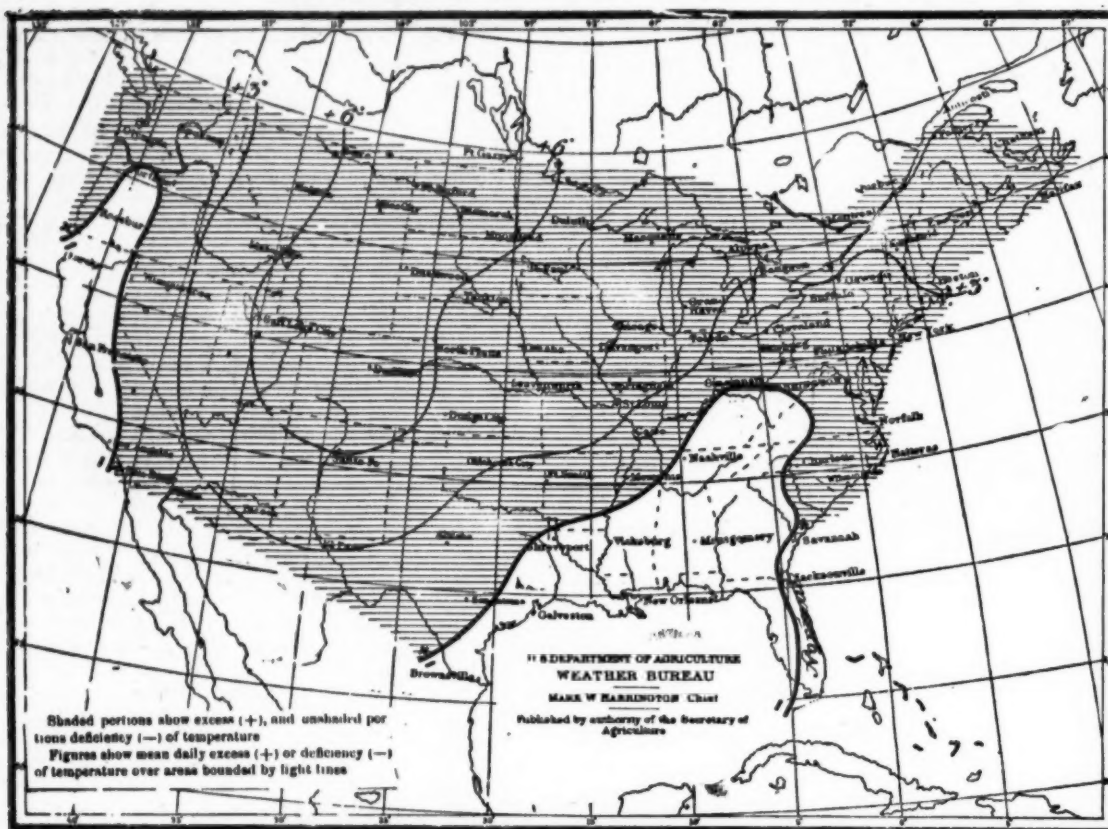
It costs more to produce one of these eggs than an ordinary hen's egg. They are a good deal larger, and for this reason they should get a better price. But even with a better price it would not pay if the eggs were laid by the ordinary barnyard duck. It would pay just as long as the supply of eggs is kept; but this class of animals are noted for the fewness of their eggs. The Pekin ducks, as we have said before, are best layers of any of the varieties of ducks, and if they are kept and fed carefully undoubtedly a profit would be derived from the sale of eggs.



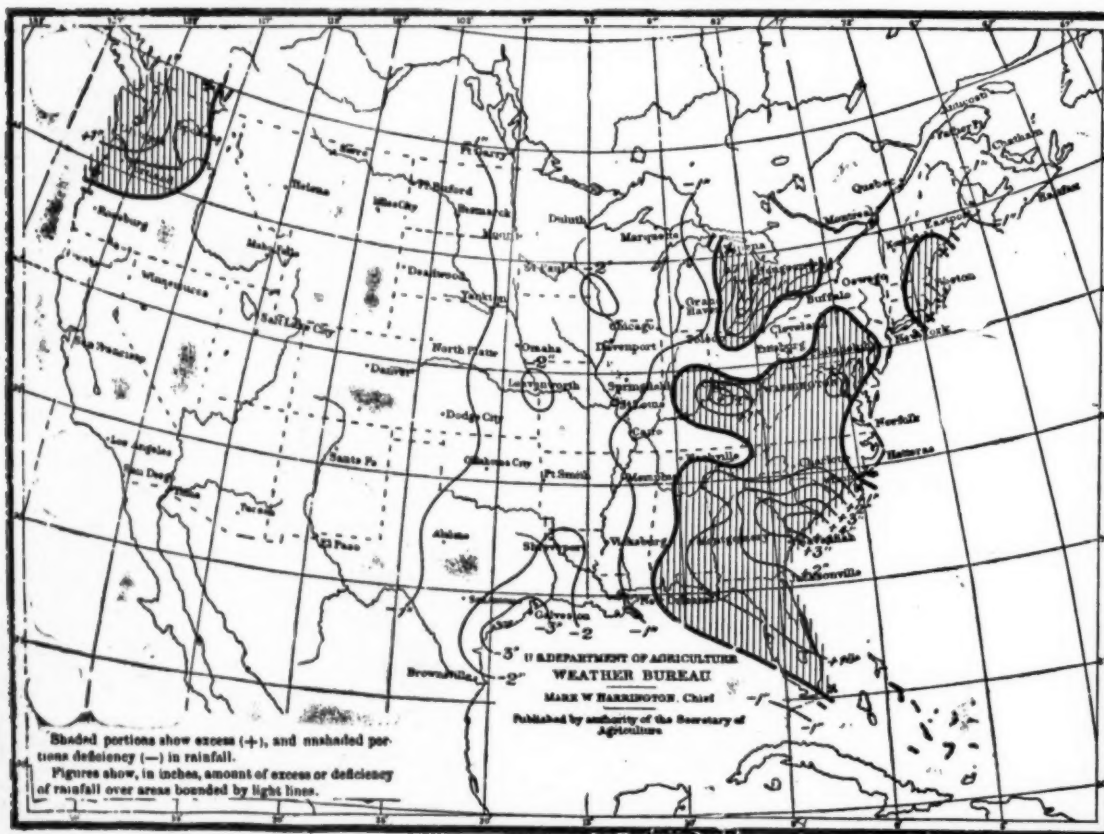
## U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

## Weather-Crop Bulletin for the Two Weeks Ending Sept. 26, 1892.

Temperature Departures for the Two Weeks Ending Sept. 26, 1892.



Precipitation Departures for the Two Weeks Ending Sept. 26, 1892.



U. S. DEPARTMENT OF AGRICULTURE,  
WEATHER BUREAU,  
WASHINGTON, D. C., Sept. 30, 1892.

## TEMPERATURE.

During the two weeks ending Sept. 26, 1892, the temperature was normal or slightly below in the Gulf States and California. In the Middle and South Atlantic States and on the north Pacific Coast it was slightly warmer than usual, while from the upper Mississippi Valley westward to the Rocky Mountain region it was decidedly warmer than the average, the daily excess of temperature amounting to from 3° to 8°. The first week of this period was cooler than usual over central valleys and Gulf States, and warmer than usual in the Rocky Mountain region. The second week was warmer than the average in nearly every section of the country, and exceptionally so from the northern and central Rocky Mountain districts eastward to the Lake Region and Ohio Valley.

Both weeks have been very dry over much the larger portion of the country, the exceptions being the region from the upper Ohio Valley southward and eastward over the Middle and South Atlantic States. The rainfall in the central Ohio Valley, and in the Carolinas and eastern Georgia has been very heavy in both weeks, and much more than the average has fallen on the north Pacific Coast; but in that region there was little or no rain during the first seven days.

Upon the whole the weather has been very favorable for farming operations and for the maturing of late corn, which is now considered practically safe from further injury from frost. The weather has also been very favorable for cutting and housing tobacco.

While much Fall plowing and seeding has been done, rains would be very beneficial in the central valleys and northwest to soften the ground for plowing and to germinate the seed already sown.

A large part of the corn crop has already been cut, and that remaining in the fields is now considered safe from injury by frosts, which have, however, caused some damage to corn and vegetables in low lands of northern New York on the 20th, and slight damage was done in northern Illinois on the 26th. So far this season the injury from frost has been comparatively slight.

## It Was No Go.

In a hall in Glasgow a few weeks ago there was a lecture on "Marriage and After." The lecturer said that men should kiss their wives as they did when they were a year or two married.

When the lecture was over an old man went home, put his arm around his wife's neck and kissed her. Meeting the lecturer next day he said:

"It's no go."

"What isn't?" said the lecturer.

"Weel," said the man, "when I kissed my wife she said, 'What's gone wrong wi' ye, ye auld fool ye?'"

## What Harry Wanted.

"Papa," said Harry, as he looked at his new baby brother, "I wish we had seven more, because with him and me and seven more we'd have a baseball nine."



**WOOL**

Ohio and Pennsylvania	XX	28 a20
Ohio and Pennsylvania	XX and above..	29 a30

**COTTON.**

double-head barrel, \$1.50a2; Maiden Blush, per double-head barrel, \$1.75a2.25; Fall Pippin, fair to prime, per double-head barrel, \$1.25a1.75; Fall varieties, common, per double-head barrel, \$1.15a1.35; 1% greenings prime, per double-head barrel, \$1.15a1.35.

1892, choice, 20a22c; fair to choice, 1891, choice, 22c; medium, 20a21c; common to good, 17a30

sheep at \$3.30-4.40; 78 pound Colorado sheep at \$3.25; Utah, 102-108 pounds, \$3.65-4.15; Oregon 107-116 pounds, \$4.15; lambs, 50-51 pounds, \$4.15-4.55.

### BUTTER AND CHEESE.

1892, choice, 20a22c; fair to choice, 1891, choice, 22c; medium, 20a21c; common to good, 17a30

New York, Sept. 27

fine, wine prices have a steady support. 1892, choice, 20a22c; fair to choice, 1891, choice, 22c; medium, 20a21c; common to good, 17a20c.

*[Illegible handwritten notes]*

CHICAGO, Sept. 27.

Hogs—The market opened firm to steady, but after the shippers and some of the packers filed in their urgent orders the market weakened and prices declined 5c20c, according to quality. The best grades naturally suffered the least decline, but

sheep at \$3.30-4.40; 78 pound Colorado sheep at \$3.25; Utah, 102-108 pounds, \$3.65-4.15; Oregon, 107-116 pounds, \$4.15; lambs, 60-61 pounds, \$4.15.

\$5.00.

2





#### Had Him There.

An aged negress, whose eminent piety had secured for her an extensive reputation, in making her usual round of visits, dropped in upon a neighbor who was equally well known as a temperance man and a hater of tobacco, too.

After being courteously received, the negress pulled from her pocket a long pipe, and commenced smoking some very strong tobacco, to the infinite disgust of her host.

The man maintained his composure for several minutes; but the fumes and smoke soon became too powerful for him, and, rising from his chair, he said: "Aunt Cloe, do you think you are a Christian?"

"Yes, brudder, I 'spect I is."

"Do you believe in the Bible, aunty?"

"Yes, brudder."

"Do you know there is a passage which says nothing unclean shall inherit the kingdom?"

"Yes, I've heard of it."

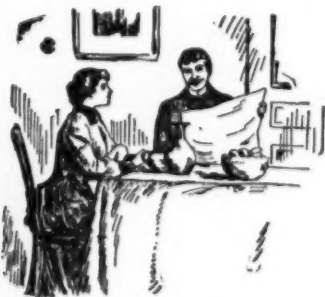
"Do you believe it?"

"Yea."

"Well, Cloe, you smoke, and you cannot go to heaven, because there is nothing so unclean as the breath of a smoker. What do you say to that?"

"Why, I 'pects to leave my breff behind me when I die!"

#### Corrected.



"What is that expression about the only honest Indian?"

"I suppose you mean the only good Indian is a *non est* one!"

#### Why He Wasn't in Church.

Rev. Plink Plunk—Wy wauzn't ya to chu'ch las' Sunday, Brudder Fountain?

Brudder Fountain—Well, to tell de truf, I went to de Suburban, played a hoodooed hoss, an' didn't git back till Sunday ebenin'.

Wants the earth—the investor who is anxious to make swamp land available.

#### A "Settler."

A shopkeeper a few days since purchased of an Irishwoman a quantity of butter, the lumps of which, intended for pounds, he "weighed in the balance and found wanting."

"Shure, it's yer own fault if they are light," said Biddy, in reply to a complaint of the buyer; "it's yer own fault, sir; for wasn't it a pound of soap I bought here myself that I had in the other end of the scale when I weighed 'em?"

#### Papa's Break.



Tommy—Do you know the vowels, papa? How many are there?

Papa (absently)—A—E—I—O—U—shall we say 50.

#### Change of Diet.

Doctor—Well, Rastus, how are you feeling to-day?

Rastus—I reckons, Doctah, I done feels jus' 'bout no bettah, sah!

Doctor—Indeed! What did you have for dinner to-day?

Rastus—Chicken, sah!

Doctor—Why, man alive, that was what you had yesterday, and I distinctly told you then you needed a change of diet.

Rastus—I war mighty 'ticklar 'bout dat, Doctah; dis wuz altogedder anudder chicken dat I done eat ter-day.

#### The Truthful Landlord.

Enraged Guest—How's this, sir! how's this! You advertised running water in every room in the house, and all the water you've got on the premises is what you catch in a dirty tub under the eaves.

Serene Host—Say, lookahere, young man; when I advertise a thing I have it.

Guest—Then, where's your running water in every room?

Host—Well, you jest wait till the next time it rains and you'll see.

#### Taking Things Easy.

Wooden—Young Loaflots takes things pretty easy, doesn't he?

Wagg—Well I should say he did! He came to see me the other night and he took a box of my 15-cent cigars so easy I never knew it till he was gone.

#### The Evils of Cigaret Smoking.

A boiler burst in Rochester a few days ago, and the only person injured was a young man who was smoking a cigaret on a street corner three blocks away—another awful warning against cigaret smoking.

#### In Washington Society.



"Why is the Chinese Minister so pleased with you?"

"Oh, he was paying some flowery compliments, and I told him *Rats!*"

#### Could Hear Him.

Charcoal Man (colored gentleman going up back alley)—Carco-o-al! Charcoal!

Colored Cook (from kitchen door)—Shut up! whuffer yo' mek such a noise?

Charcoal Man—Kin you heah me?

Colored Cook—Kin I heah you? I carnt heah nuffin else when yo' done open you big black mouf an' holler like dat. Ob cose I kin heah yo'!

Charcoal Man—Good; dat what I'se hollerin' foh. Chare-o-oal!

#### Rare Luck.

Mrs. Bloomer—It's shameful! Mr. Silent, who is deaf and dumb, is going to marry Miss Quiett, and she's deaf and dumb.

Mr. B.—What of it?

"Why, just think. Their children may be deaf and dumb, too."

"That's all right. We'll watch where they settle, and move in next door to 'em."

#### Life in the Suburbs.

Mr. Suburb—Haven't you a dog to protect your house from tramps?

Mr. Lawnmo—Yes.

"Then why do you walk around every night with a gun?"

"Oh, I'm not protecting the house. I'm only protecting the dog."

#### One Theory.

Mamma—Now, why did George Washington confess to his father that he cut down the cherry tree?

Small Son—I s'pose his mouth was all cherry stains.

#### Scriptural Authority.

Teache!—In what part of the Bible is it taught that a man should have only one wife?

Little Boy—I guess it's the part that says no man can serve two masters.

#### Small Pigs.

Little Boy (visiting in the country)—Oh mamma, I saw a great big mamma pig down to the barn.

Mamma—You did?

Little Boy—Yes, an' she had a whole lot of pigmies.

#### The Revengeful Fly.

First Fly—That farm boy just smashed a near relative of mine. I'd like to bite him.

Second Fly—That wouldn't hurt him much. Just wait till he begins milking. We'll worry the cow, and then she'll knock him flat with her tail.

#### A Plan that Failed.

Mamma—How did you get scratched so?

Little Daughter—I was putting dolly's shoes an' stockin's on the kitty.

"What for?"

"So she couldn't scwatch."

#### A Scene for the Future.

Ethel—Just wait a moment, Hetty, until I show you the lovely engagement ring Gerald gave me.

Hetty—Oh, never mind, dear; I wore it for six months myself and know just how it looks.

#### Delusive.



#### A Conscientious Man.

Mr. Sam Harritan—Why don't you get a horse, Mike, to carry that load?

Mike—So I would, sor; but I'd be afear'd I'd be arrested fer cruelty teh animals.

#### What Every Man Wants.

Would-be Customer—Yes, I would like to marry, and if you come across a handsome, young, amiable girl who has money and who wants a good home, just drop me a postal.

Marriage Broker—I beg your pardon, but if I find that kind of a female I'm going to marry her myself.

A cyclone may be put down in the list of catching airs.









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